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PRINCIPAL INVESTIGATOR: Cheryl Golden, Ph.D.

CONTRACTING ORGANIZATION: LeMoyne-Owen College
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14. ABSTRACT

Cheryl Golden, Ph.D. of LeMoyne Owen College (LOC) and Sue Greco, Sc.D. of Abt Associates Inc. (Abt) are the co-Principal Investigators for the Partnership for Asthma Trigger-free Homes. The PATH study's goal is reducing the asthma disease burden on low-income housing residents by means of a peer-based education program. Although asthma is a complicated multifactorial disease with both genetic and environmental components, reducing levels of certain indoor asthma triggers can reduce the disease symptoms and severity. Indoor asthma triggers include allergens (dust mite, cockroach, cat, dog, rodent), environmental tobacco smoke (ETS), pesticides, and molds. The Project Coordinator will train participants (parents or guardians over 18 years old) recruited from the Memphis Housing Authority and the Memphis Health Center about asthma, in general, and indoor asthma triggers, in particular. Moreover, participants will learn about behaviors they can adopt or modify to reduce indoor asthma triggers. The training will be reinforced by Community Peer Educators (CPE's) – students from LeMoyne-Owen College and resident presidents of four MHA housing developments. (After the successful implementation of this program in public and low-income housing, PATH may be transferred to a military setting if additional funding is procured.)

15. SUBJECT TERMS
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Contents

Introduction

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Body

The following are the Year 1 Goals, as outlined in the revised Statement of Work, and the accomplishments associated with each task. At present, LeMoyne-Owen College and Abt Associates Inc. have applied for and received Institutional Review Board (IRB) approval at their respective institutions, and data collection is expected to begin in September 2008, pending USAMRMC concurrence with the IRB of record.

a. Establish contacts at the Memphis-Shelby County Health Department (MSCHD), the Memphis Housing Authority (MHA), and the Memphis Health Center in Memphis, Tennessee.

PATH project planning was initiated by establishing contact with MHA and MHC, the two primary sites identified for recruitment of subjects. Two Representatives from MHA and one individual from MHC became members of the LeMoyne Owen College PATH Planning team that began developing processes and procedures for recruitment, project interventions, and training that culminated in the submission of the Protocol for USAMRMC approval. The Planning Team will remain intact through the implementation and evaluation of the PATH study. The Memphis-Shelby County Health Department was identified as a community resource for clinical services and educational materials related to control of and prevention of asthma-triggers. Materials and information provided by MSCHD will be incorporated in study interventions designed for the PATH project.

b. Develop full Protocol for the PATH program.

The PATH program protocol was developed following the Protocol format of the USAMRMC document, "Guidelines for Investigators: Requirements for the U.S. Army Medical Research and Materiel Command (USAMRMC) Headquarters Review and Approval of Research Involving Human Volunteers, Human Anatomical Substances, and/or Human Data" (dated 29 January 2007). Using the protocol as a master guide, LeMoyne-Owen College and Abt Associates Inc. have applied for and received Institutional Review Board (IRB) approval at their respective institutions. The Protocol in included as **Appendix 1** to this document.

c. Develop data analysis plan.

A data analysis plan for the PATH program was developed, and is included in Section B.16 of the Protocol. It discusses how PATH study staff will evaluate pre- and post- intervention knowledge of asthma triggers and Participants efforts at remedying those triggers. Please see **Section B.16** of **Appendix 1**.

d. Develop pre- and post-education surveys.

The PATH study employs a longitudinal (pre/post) study design, with the first survey being administered before the education session and the second survey after it. Pre- and post-education surveys for the PATH program were developed from pre-existing documents, consultation with

survey experts, and input from all PATH staff. The surveys are included in **Section G** of **Appendix 1** (the Protocol).

e. Develop Participant Education Session

A Participant Education Session was developed, and is included in **Section F** of **Appendix 1** (the Protocol). The Education Session consists of an introduction to the PATH study, asthma basics, general information about outdoor and personal asthma triggers, and detailed information about indoor asthma triggers (dust mites, cockroach, environmental tobacco smoke, pest, pet, nitrogen dioxide, pesticide, indoor chemicals). Also included are resources to find help for asthma symptoms and smoking cessation. Study Participants will be given a brochure with additional information to take home.

f. Develop courses for Student and Resident President Community Peer Educators.

The courses for Student and Resident President Community Peer Educators are currently under development by Abt Associates Inc. The outlines for the courses have been approved by LeMoyne-Owen College and staff at LOC will approve the course material before the courses are delivered by Abt Associates Inc. staff in August and September 2008. Copies of the courses can be made available to the USAMRMC upon request.

g. Recruit and train LeMoyne-Owen College students and MHA Resident Presidents as Community Peer Educators and data gatherers.

Abt Associates Inc. will deliver the training sessions for LeMoyne-Owen College students in mid-August 2008 and for the MHA Resident Presidents in August and September 2008.

h. Train PATH study staff.

PATH study staff, particularly the Program Coordinator and Student Research Coordinator will be trained at the same time as the Student and Resident President Community Peer Educators and the Memphis Health Center staff in August and September 2008.

i. First USAMRMC Progress Report.

This document serves as the first Progress Report to USAMRMC.

Key Research Accomplishments

LeMoyne-Owen College and Abt Associates Inc. have applied for Institutional Review Board (IRB) approval at their respective institutions. Pending IRB approval, study data collection will begin in September 2008. There are no research accomplishments to report at this time as the data collection phase has not yet begun.

Reportable Outcomes

As of July 15, 2008, LeMoyne-Owen College and Abt Associates Inc. have applied for and received Institutional Review Board (IRB) approval at their respective institutions. As the IRB of record, LeMoyne-Owen College will forward the approved IRB forms to the USAMRMC for consideration. Pending IRB approval from the Army, study data collection will begin in September 2008.

The USAMRMC lists reportable outcomes as: "manuscripts, abstracts, presentations; patents and licenses applied for and/or issued; degrees obtained that are supported by this award; development of cell lines, tissue or serum repositories; infomatics such as databases and animal models, etc.; funding applied for based on work supported by this award; employment or research opportunities applied for and/or received based on experience/training supported by this award." Defined as such, there are no reportable outcomes at this time.

Conclusion

The expenditure of energy and time were the necessary, but not unexpected, challenges of the planning phase of the PATH project. Likewise, we moved through the essential phases of building trust and respecting mutual and diverse expertise of all involved with the project. The Principal Investigators wisely invested in the planning structure and systems for communicating and mediating project needs and concerns that resulted in development of the Study Protocol, the target of the first phase of PATH study. Key communications systems included weekly conference calls and the use of a website through Abt Associates dedicated to sharing information and storage of project documents. We instinctively recognized that by team work, thinking, working, and planning together we could accomplish more together than alone. The Protocol represents a successful outcome for the whole PATH team, a model of collaborative partnership.

References

There are no references in this annual report. There are references listed in the Protocol which is submitted as **Appendix 1**.

Appendices

LeMoyne-Owen College and Abt Associates Inc. worked together to create a Protocol document based on the format of the USAMRMC document, "Guidelines for Investigators: Requirements for the U.S. Army Medical Research and Materiel Command (USAMRMC) Headquarters Review and Approval of Research Involving Human Volunteers, Human Anatomical Substances, and/or Human Data" (dated 29 January 2007). This Protocol is included in this annual progress report as Appendix 1.

The Protocol in **Appendix 1** includes the following sections:

A. Preamble
B. Protocol
C. Biosketches of PIs and Key Study Personnel
D. Advertisements Used to Recruit Volunteers
E. Informed Consent Documents
F. Participant Education Session and Handout
G. Surveys and Data Collection Instruments
H. References
I. List of Abbreviations

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U.S. Army Medical Research and Materiel Command (USAMRMC) Headquarters Review of and Approval of Research Involving Human Volunteers and Data

PROTOCOL

Partnership for Asthma Trigger-free Homes (PATH) Study

Contract No.: W81XWH-07-1-0469
Project No.: W91ZSQ7138N601

June 5, 2008

Prepared for
USAMRMC Human Research Protections Office
c/o Melissa Forsythe
Congressionally Directed Medical Research Programs (CDMRP)
1077 Patchel Street
Fort Detrick, MD

Prepared by
Sue Greco, Abt Associates Inc.
Cheryl Golden, LeMoyne-Owen College

Contents

Tables

Figures

A. Preamble

The Partnership for Asthma Trigger-free Homes (PATH) is a study led by LeMoyne-Owen College (LOC), located in Memphis, Tennessee, and Abt Associates Inc. (Abt), with headquarters in Cambridge, Massachusetts and offices across the U.S., including Bethesda, Maryland, and worldwide. Through the PATH study, LeMoyne-Owen College and Abt Associates Inc. propose to implement an education program targeted at parents or guardians of children (with or without asthma) living in low-income or public housing in Memphis, Tennessee. The education intervention is designed to improve knowledge about asthma as well as to promote behaviors in adults that can reduce indoor asthma trigger levels. Asthma is a prevalent chronic disease in childhood, and low-income/minority communities may be particularly affected, thus the target community is ideal for intervention. Since one aspect of asthma management is trigger avoidance and since most people tend to spend the majority of their time indoors, a program to reduce indoor asthma triggers may be a particularly effective public health intervention. Furthermore, since some triggers can lead to the development, not just the worsening of asthma, non-asthmatics may also experience potential benefit from this program.

The PATH study employs a longitudinal (pre-/post-education) study design, with each adult volunteer (Participant) acting as his/her own control. The lack of a traditional control group is the preferred method for community-based participatory research (CBPR) since each Participant receives the intervention. This pilot study will serve to test study hypotheses and generate others that may be more rigorously tested in the future, should additional resources be procured. PATH will recruit Participants from four Memphis Housing Authority (MHA) developments and the central Memphis Health Center (MHC) site. The Project Coordinator/Lead Researcher will conduct the asthma/asthma trigger training in small groups, aided by two sets of Community Peer Educators (CPEs) and Memphis Health Center staff. The first set of CPEs will be identified from the Student Health Ambassador program at LeMoyne-Owen College and the second set of CPEs are Resident Presidents at the four Memphis Housing Authority housing developments involved in the study. Other assistance will come from the PATH Research Assistant, Student Research Coordinator, and Administrative Assistant. Surveys will be administered before and after the education session to assess the effectiveness of the training in PATH study Participants. Memphis Housing Authority Participants will be given the option to have a Home Assessment conducted by the Student Community Peer Educators. This will involve a complete tour of the home to identify indoor asthma triggers, validate some of the First Survey (pre-education) responses, and selectively reinforce topics taught at the education session. **Table 1** below summarizes the PATH study interventions.

Table 1. Overview of PATH Study Participant Interventions

Activity	Pre-Education Questionnaire	Educational Interventions	Pre-Education Questionnaire
PATH Term	First Survey	Education Session (required) Home Assessment (optional)	Second Survey

Funding

The United States Army Medical Research and Materiel Command (USAMRMC) Congressionally Directed Medical Research Programs awarded this contract to LeMoyne-Owen College effective

August 1, 2007. The Contract Number is W81XWH-07-1-0469 and the Requisition/Purchase Request/Project Number is W91ZSQ7138N601. Abt Associates Inc. is a subcontractor to LeMoyne-Owen College, effective November 1, 2007.

Additional donations are being pursued for give-away materials for the Home Assessment. (These are materials that can help to reduce indoor air triggers, like mattress covers, vacuum cleaners, and Tupperware containers.) If these donations are procured, the funders will be acknowledged on study materials.

B. Protocol

Below, we follow the protocol format of the document titled, "Guidelines for Investigators: Requirements for the U.S. Army Medical Research and Materiel Command (USAMRMC) Headquarters Review and Approval of Research Involving Human Volunteers, Human Anatomical Substances, and/or Human Data" (dated 29 January 2007).

PATH study staff developed all aspects of this Protocol document. Using this document as a master guide, LeMoyne-Owen College and Abt Associates Inc. will apply for Institutional Review Board (IRB) approval at their respective institutions. The approved LeMoyne-Owen College IRB will serve as the IRB of record for the USAMRMC.

1. Protocol Title

Partnership for Asthma Trigger-free Homes (PATH) - Protocol

2. Principal Investigator/Study Staff

There are two Principal Investigators (PIs) for this partnership; one from LeMoyne-Owen College and one from Abt Associates Inc. The co-PIs are:

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Key study personnel come from the two key partner institutions, LeMoyne-Owen College (in partnership with key community partner, the Memphis-Shelby County Health Unit) and Abt Associates Inc. Please find key study personnel listed in **Table 2**.

Table 2. Key Study Personnel

Name, Highest Degree(s)	Job Title, Employing Institution
Rahn Dorsey, B.A.	Associate, Domestic Health Division, Abt Associates Inc.
Meghan Lynch, MPH, Sc.D.	Senior Analyst, Environment & Resources Division, Abt Associates Inc.
Penny Schafer, Ph.D.	Principal Associate, Environment & Resources Division, Abt Associates Inc.
Ernestine Small, R.N., Ed.D.	Nursing Education Coordinator, Memphis-Shelby County Health Department
Deborah Klein Walker, Ed.D.	Vice President, Domestic Health Division, Abt Associates Inc.

In addition to key study personnel, there will be three key PATH staff members who reside at LeMoyne-Owen College:

- a Student Research Coordinator,
- a Research Assistant, and
- an Administrative Assistant.

Furthermore, key contacts have been made where study Participants will be recruited at the Memphis Housing Authority and Memphis Health Center, as described in **Section 9**.

→ Biosketches for the co-PI's and key study personnel can be found in **Section C – Biosketches of Pis and Key Study Personnel**.

3. Study Locations

There are four primary study locations associated with designing, managing, conducting (recruitment, surveys, education session, home assessment, and evaluations) and evaluating the study. These sites - LeMoyne-Owen College, Abt Associates Inc., Memphis Housing Authority, and Memphis Health Center - are listed below. All sites will be overseen by the co-PI's, Dr. Cheryl Golden of LeMoyne-Owen College and Dr. Sue Greco of Abt Associates Inc.

a. LeMoyne-Owen College

The Partnership for Asthma Trigger-free Homes (including: administration, design, data transcription/management/storage/analysis, and laboratory analysis) will be conducted out of LeMoyne-Owen College (LOC), 807 Walker Avenue, Memphis, Tennessee 38126. Community Peer Educators, drawn from the Student Health Ambassador pool in LeMoyne-Owen College's Wellness Program, will be trained at LeMoyne-Owen College by LOC and Abt staff in an LOC course, as well as in PATH-specific training.

The Federalwide Assurance number for LeMoyne-Owen College (IRB of record) is: FWA00012941

Investigators:
Cheryl Golden, Ph.D., Chairperson, Division of Social and Behavioral Sciences

LeMoyne-Owen College, 807 Walker Ave., Memphis, TN 38126

Ernestine Small, RN, Ed.D, Nursing Education Coordinator
Memphis-Shelby County Health Department, 814 Jefferson Avenue, Memphis, TN 38105

b. Abt Associates Inc.

Study design and analysis, educational curriculum development, survey development, protocol development, data QA/QC and analysis, program evaluation, and information dissemination will take place at Abt Associates Inc. offices located in Bethesda, Maryland and Cambridge, Massachusetts.

The Federalwide Assurance number for Abt Associates Inc. is: FWA00000664

Investigators:
Sue Greco, M.A.Sc., Sc.D., Senior Analyst, Environment & Resources Division
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Rahn Dorsey, Associate, Domestic Health Division
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c. Memphis Housing Authority

Most of the PATH study Participants will be recruited from four housing developments located within a 4 square mile area in Memphis, Tennessee. The addresses of the housing developments are listed in **Table 3** below. Memphis Housing Authority partners who have been involved in study planning are Mrs. Jackie Partee, Director of MHA Human Resources, and Mr. Albert Sanders, Chair of MHA Resident Association Council of Presidents.

Table 3. MHA Housing Developments in PATH Study

MHA Development	Office Address	Zip Code	Construction Date
Foote Homes	521 Vance Park Place	38126	1940/1997
Cleaborn Homes	430 S. Lauderdale St.	38126	1954
Montgomery Plaza	1395 Pennsylvania St.	38106	1974
G.E. Patterson Point	886 Latham St.	38126	2006

Liaisons:
Ernestine Small, Ed.D., RN
Cheryl Golden, Ph.D.

d. Memphis Health Center

Additional PATH study Participants will be recruited from the Memphis Health Center (MHC) through referral from MHC staff physicians. The Memphis Health Center will also serve as a community resource for all PATH Participants in need of medical care for asthma or other health issues. The main MHC site, from which volunteers will be recruited, is located at 360 E. H. Crump Boulevard, Memphis, TN. While several nearby satellite centers exist, PATH study activities will be limited to the main site. Memphis Health Center partners who have been involved in PATH study planning are: Mr. William Jackson, Chief Executive Director; Dr. Oscar Webb, Chief Medical Officer; and Mrs. Rose Dugger, MHC Director of Outreach and Community Relations.

Liaisons:
Cheryl Golden, Ph.D.
Ernestine Small, Ed.D, RN

4. Background

Asthma is a substantial public health burden, particularly for children, both in terms of the number of people affected by the disease and the related morbidity and cost. It is estimated that 21 million people in the United States currently have asthma, based on U.S. Centers for Disease Control and Prevention and Behavioral Risk Factor Surveillance System Data. The current impact of asthma can be assessed in annual missed school days (14 million), missed work-days (14.5 million), emergency department visits (1.9 million), physician office visits (11.3 million), hospitalizations (484,000) and deaths (4,269), totaling approximately $11.5 billion in direct health care costs (Selgrade, Lemanske Jr. et al. 2006). In Tennessee, about 9.0% of all adults were told by a health professional that they currently have asthma, resulting in a state prevalence rate that is the twelfth highest in the U.S (Hughes, McCracken et al. 2006).

Minority children residing in low-income housing are one of the most severely health-compromised groups among under-serviced communities and have chronic disease rates two to four times higher than the general population (Bazargan, Calderon et al. 2005). According to the 2005 National Health Interview Survey, children in families with the lowest income-to-poverty threshold ratios exhibited the highest asthma prevalence rates in the country. African American children aged between 0 and 14 years exhibited asthma rates of two to three times the rates of their white counterparts (NHIS, 2005). This disparity has increased in recent years, with black children exhibiting significantly higher hospitalization, emergency department visit and death rates due to asthma (Akinbami, 2006).

The Children and Asthma in America survey examined asthma prevalence and management in the state of Tennessee in 2004. The survey concluded that Tennessee has a significant number of asthmatic children whose condition is not under control. In fact, 64% of asthmatic children had a severe attack in the year prior to investigation, with more than a third of those attacks perceived by the asthmatic as life threatening. Asthma's impact on the lives of children and their caregivers can be debilitating. Sixty percent of children in Tennessee were limited by asthma in activities such as sports and sleeping, and almost half of the children in the survey missed school or daycare in 2003, with an average of five school days missed that year. The productivity of the caregivers is hindered

as well: 41% of parents of children with asthma missed work due to their child's condition (Children and Asthma in America, 2004).

According to a recent State of Childhood Asthma report, between 2001 and 2005, the Tennessee annual average asthma prevalence in children under 18 years old was 7.3% (Akinbami, 2006). Although children's asthma rates have been increasing dramatically in recent decades, awareness about triggers and treatment options still remains low. The 2004 Tennessee survey exposed a significant level of misunderstanding regarding asthma causes and treatment options. Almost two thirds of the parents of children with asthma believed that only acute asthma episodes (attacks) could be treated, rather than ongoing control of asthma triggers and chronic asthma symptoms. While current clinical guidelines suggest daily treatment of airway inflammation and mucus production, more than half of parents were not aware of the existence of any medications to treat these chronic conditions. As a result of this widespread misunderstanding, 71% of children with asthma did not have a written Asthma Action Plan, and 43% did not meet the National Heart, Lung, and Blood Institute's (NHLBI) recommended two doctor visits in the prior year (Children and Asthma in America, 2004). The studies listed above reveal a strong need for asthma caregiver education and increased outreach to control asthma symptoms and asthma triggers.

The etiology of asthma is complex and has a gene-environment interaction that is poorly understood. The asthma disease process may be viewed in terms of development (or induction) of asthma and worsening (exacerbation) of asthma symptoms. A body of evidence suggests that exposures found in indoor environments, mainly consisting of the home, are important factors in both the development and exacerbation of asthma (Krieger, Takaro et al. 2002). These triggers include:

a. Dust mite allergens
b. Cockroach allergens
c. Pet and rodent allergens
d. Molds
e. Indoor chemical air pollutants, including environmental tobacco smoke (ETS), pesticides, and nitrogen dioxide (NO_2)

Of the above categories, breathing in dust mites, and potentially cockroach allergens, were found to have a role in the development of asthma while, exposure to cat, dog, mouse, mold, cockroach, ETS, and NO_2 has been found to exacerbate asthma symptoms (NAS 2000). The Inner-City Asthma Study, which examined asthma triggers in seven American cities found that cockroach allergen exposure and sensitivity were predominant in northeastern cities, but dust mite exposure and sensitivity were higher in the South and Northwest (Gruchalla, Pongracic et al. 2005).

Several recent initiatives have quantified the levels of asthma triggers in inner-city housing. These studies are relevant since they were conducted in low-income and public housing, often occupied by residents with similar demographics (low income, African American) as our target population. Furthermore, these studies address conditions found inside homes. A few of these initiatives are discussed below.

The Healthy Public Housing Initiative, based in Boston, is a partnership between three universities, several community based organizations, and the Boston Housing Authority with the primary goal of reducing asthma triggers and symptoms in public housing complexes. African Americans made up between 14% and 43% of study Participants, depending on the housing complex. Briefly, researchers found that approximately 50% of Boston Housing Authority homes surveyed contained cockroach allergens in amounts exceeding the level associated with asthma sensitivity and approximately 60% of asthmatic children tested showed allergic sensitivity to the most prevalent cockroach allergen. They found that pest allergen levels correlated well with easily evaluated measures such as lack of recent housing renovation, holes in walls and poor housekeeping (NCHH 2007). Pesticide residues were found in every home tested, and in most cases, residue from more than one pesticide was present. Most importantly, an integrated pest management (IPM) package designed to reduce allergen burden, including intensive cleaning, baiting for pests and repair of structural defects was successful in improving both environmental and health indicators. Integrated pest management, combined with peer-education programs, and cleaning and preparation of homes prior to IPM treatments was the most successful model for reduction of pest infestation (NCHH 2007).

In a Los Angeles study of a primarily a low-income, Latino population, all homes that reported sightings of mice also had detectable levels of rodent allergens. Though some homes that did not report sightings also had detectable levels of rodent allergens, those reporting sightings had higher levels. Unwashed dishes or food crumbs left on the counter, lack of a working vacuum, and a caregiver report of a smoker in the home were all significantly associated with a greater likelihood of reporting the presence of rodents in the home and detection of allergens (Berg J. 2008).

A study in New York City of African American and Dominican mothers (the majority earning less than $20,000/year) found several variables correlated with mouse allergens in the home: the frequency of mouse sightings; use of traps and pesticides; holes in ceilings; and the lack of a cat (Chew, Perzanowski et al. 2003). The presence of a particular cockroach allergen (Bla g 2) was also found to be significantly correlated with deteriorating housing conditions (defined as holes in ceilings and walls, water damage, etc.) (Rauh, Chew et al. 2002).

In Gary, Indiana, in a study of low-income housing residents (predominantly African American), over 80% of the units were infested by pests, including cockroaches. Dust samples were collected, and 98% of the kitchen dust samples had detectable levels of cockroach allergen. The study found significant correlation between 24-hour sticky trap counts and levels of cockroach allergen. The authors provide regression equations that can be used to estimate cockroach allergen (Bla g 1 and Bla g 2) levels as a function of cockroach counts (Wang, Abou El-Nour et al. 2008).

The indoor levels of many of these asthma triggers (such as dust mite, cockroach, rodent) are modifiable and thus amenable to public health intervention. In addition, there is evidence that an education approach to limiting exposure to sensitizing agents in the indoor environment can be successful in reducing asthma symptoms in young children (Selgrade, Lemanske Jr. et al. 2006), (Krieger, Takaro et al. 2002).

The PATH study proposes to use Community Peer Educators (CPEs) to help with recruitment, to reinforce the education sessions, and to conduct the Home Assessments. The CPEs will be drawn from the student population of LeMoyne-Owen College and the community leaders of Memphis Housing Authority developments. Demographic characteristics (African American, low income, Memphis residents) show substantial overlap between the study volunteers and the Community Peer

Educators. There is ample evidence to support the use of peer educators in health promotion on the basis that peer educators are culturally sensitive, more likely to be accepted, and, therefore, more efficient in transmitting the necessary knowledge (Persky, Coover et al. 1999), (Coyle, Needle et al. 1998). Persky et al. (1999) reported that families of asthmatic children are frequently responsive to peer educators in their own homes and feel comfortable discussing the issues they face in terms of modifying asthma risk factors. Other researchers have suggested that this type of favorable experience with peer health educators may enhance the overall effectiveness of the intervention (McConnell, Milam et al. 2005).

Working together, LeMoyne-Owen College and Abt Associates Inc., with community partners Memphis Housing Authority and Memphis Health Center partners, will develop and implement the Partnership for Asthma Trigger-free Homes (PATH). This peer-based asthma education program aims to reduce children's (and adults') exposure to indoor asthma triggers in low-income and public housing and to increase awareness about ongoing management of asthma and availability of medical resources.

5. Objectives/Specific Aims/Research Questions

The Participants in this study may be parents or guardians of children (who may or may not have asthma). Participants can also be referred to as Caregivers. The scientific and general objectives of the Partnership for Asthma Trigger-free Homes are outlined below.

a. Scientific Objectives

There are five main PATH study objectives associated with research questions and hypotheses. They are to:

- increase Participant knowledge about asthma and indoor triggers;
- promote Participant behaviors that can reduce indoor asthma triggers;
- estimate self-reported trigger levels (in all Participants), measure certain trigger levels (in a subset of Participants who participate in a one-time Home Assessment), and measure the correlation between the two;
- assess the change in the Participant's (caregiver's) quality of life associated with participation in the PATH program, and the change in the child's asthma symptoms, as reported by the caregiver (for the subset of Participants who care for asthmatics); and
- determine whether changes in the caregiver quality of life and the caregiver-reported child's asthma symptoms are associated with reductions in any indoor triggers or modified by any factors (for the subset of Participants who care for asthmatics).

The research questions and hypotheses are listed below.

1. Will Participant knowledge about asthma and its indoor triggers (as measured by survey instruments) increase after completion of the Partnership for Asthma Trigger-free Homes (PATH) peer-based asthma education program?

   We expect that the Participant will increase his/her knowledge about asthma and indoor asthma triggers, after learning more about asthma and how to identify asthma triggers in the home from

PATH's Project Coordinator/Lead Researcher, with reinforcement by the Community Peer Educators. We further expect that Participant knowledge will increase to a greater extent in those who participate in the optional Home Assessment component.

2. Will Participant self-reported household behaviors that reduce levels of asthma triggers (such as washing bed sheets in hot water or taking a smoke-free pledge) increase after participating in the Partnership for Asthma Trigger-free Homes (PATH)?

We expect that self-reported household behaviors that can reduce levels of asthma triggers will increase after the education session, delivered by the Project Coordinator/Lead Researcher and reinforced by the Community Peer Educators. We further expect that Participant self-reported household behaviors that reduce asthma triggers will increase to a greater extent in those who participate in the Home Assessment, in addition to the Education session, and in those who care for an asthmatic child.

3. Will self-reported indoor asthma trigger levels (indicated by self-reported pest sightings, evidence of water damage, etc.) decrease after participating in the Partnership for Asthma Trigger-free Homes (PATH)? Is this decrease a result of behavior changes? Are self-reported trigger levels correlated with measured trigger levels (cockroach counts, observations of water damage, etc.)?

We expect that self-reported asthma trigger levels will decrease as reported on the Second Survey, presumably because of the promotion of behaviors to reduce indoor triggers. We further expect self-reported asthma trigger levels, as measured by the First Survey instruments, will be positively correlated with asthma trigger levels determined from the one-time Home Assessment. (Note: the Home Assessment will only be performed for a subset of MHA study Participants.)

4. Will Caregiver quality of life (QOL) and Caregiver-reported child's asthma symptoms improve after participating in the Partnership for Asthma Trigger-free Homes (PATH)?

As a result of education about indoor asthma triggers, and subsequent behavior changes to reduce the trigger levels, we expect that Caregiver-reported child's asthma symptoms (such as wheezing) and Caregiver quality of life (such as missed days of work due to asthma) will improve after participating in the program. We further expect that Caregiver QOL to improve to a greater extent in those who participate in the Home Assessment, in addition to the Education session.

5. Are changes in caregiver-reported quality of life (QOL) explained by any study variables, such as asthma trigger levels?

We expect that changes in caregiver QOL may be associated with estimates of self-reported trigger levels, measured trigger levels, satisfaction with program, or other explanatory variables.

b. General Objectives

Other more general objectives of the PATH study involve community and capacity-building, with a particular focus on improving and sustaining community health. The PATH study is intentionally aligned with principles supporting participatory research and improvements in community health. As such, the study also seeks to contribute to:

- Developing community-inclusive processes;
- Addressing the social determinants of health;
- Leveraging strategic community partnerships;
- Empowering local actors to take ownership of efforts to improve community health; and
- Building social capital.

Another important objective of the PATH study is to build local capacity to research and address community health issues beyond the time horizon of this particular study. We anticipate that the relationships developed between LeMoyne-Owen College, the Memphis Housing Authority, the Memphis Health Center, and community residents will facilitate building stakeholder-specific capacity as well as broader capacity that will benefit all partners. For example, LeMoyne-Owen College staff will gain expertise in asthma research tools and methods though managing a large multi-disciplinary community-based participatory research project. Student Community Peer Educators at LeMoyne-Owen College will gain research and community service experience. Resident President Community Peer Educators from the Memphis Housing Authority will learn more about asthma and other medical resources available to their community, community organizing and advocacy. Finally, study Participants will learn more about asthma in general, the local medical resources available to them, and steps they can take in their homes to reduce certain asthma triggers.

6. Research Design

The Partnership for Asthma Trigger-free Homes (PATH) will use an educational intervention to promote behaviors that can combat childhood asthma in one specific way: avoiding indoor asthma triggers. (PATH will provide Participants with resources regarding other ways to combat asthma, including referrals to the Memphis Health Center, and suggestions to complete an asthma action plan and adhere to a prescribed medical regimen.) The PATH study aims to assess whether the educational session is effective in improving: Participant knowledge about asthma/asthma triggers, Participant behaviors to reduce levels of indoor asthma triggers, child's asthma symptoms, and caregiver quality of life. It will further attempt to assess trigger levels of all Participants through self-reported answers on the questionnaires, and for a subset of all Participants though visual inspection and measurement of trigger levels through a Home Assessment conducted by study researchers.

The PATH study will employ a longitudinal (prospective, pre-/post-) study design, with each Participant acting as his/her own control. The same Participant will complete the First and Second Survey instruments, whereby difference in responses can be measured. The lack of a traditional randomly assigned control group that does not receive the intervention is an analytical limitation of the PATH study. However, from a Community Based Participatory Research (CBPR) perspective, our use of longitudinal methods (i.e., within-subjects design, repeated measures), without a control group, is regarded as a strength since all Participants receive the intervention. The repeated measures design is common in social science research and extensively documented in behavior modification protocols. (Harvey-Berino, J., S. Pintauro, et al, 2002) (Hegel, M., & Ferguson, R., 2000) (McNeil, S., Watson, T., Henington, C., & Meeks, C., 2002) (Tarnowski, K., Gavaghan, M., & Wisniewski, J, 1989). Use of the repeated measures design statistically underscores the practical intent of the intervention - validation of behavior change because of direct intervention in an individual's life. It allows for within-subjects comparisons and higher statistical power over between-subjects designs. In the future, should additional funding be obtained, a traditional control group approach may be considered, with the control group Participants receiving the intervention at a later date. Due to resource constraints, this method was not undertaken in the present PATH study.

To partially overcome the limitation of a lack of control group, we are considering performing a limited number (n = 50) of shortened surveys by telephone to members of the Memphis Housing Authority community. These surveys would consist of only a quarter of the questions of the full survey, but would be used to assess Participant knowledge about asthma triggers and behaviors for those who did not participate in the intervention. While the method of delivery (telephone), the length, and the conditions of the survey would be different from the PATH intervention group, using this comparison group would add some strength to the overall study design.

In addition to the main education session, an optional Home Assessment will be offered to MHA Participants. The purpose of the Home Assessment is twofold. First, it will allow for a more intensive, tailored second education session in the Participant's home. Second, it will allow for the collection of more detailed data that can be used to validate some of the survey items as well as to collect information on new study variables.

While our sample size may be adequate for the evaluation of knowledge change in the overall sample, it may be inadequate for sub-sample analyses (home assessments, asthmatic assessment). Participant attrition may further compound this effect.

a. Proposed Methodology

The eleven steps in the PATH study are outlined chronologically in **Table 4** below. Participant-level data will be collected during three (and for some Participants four) of these steps: at the time of informed consent, the First (pre-education) Survey, the optional Home Assessment, and the Second (post-education) Survey. Data will be collected in accordance with the Data Management Plan (described in **Section 17**). Data will be collected on paper copies, transcribed electronically, and checked for accuracy. At each data collection step, descriptive statistics (summary statistics, frequencies) will be calculated. Most PATH steps are described in detail in separate sections of the protocol (indicated in parentheses in Table 4 below).

Pretesting of survey instruments will be conducted by PATH staff on up to 5% of the expected total sample size (10 persons). These volunteers will be administered the surveys, education program, and home assessment. Verbal feedback will be documented and changes will be made to the study instruments, keeping consistent with research principles, and after agreement by both LeMoyne-Owen College and Abt Associates Inc. Both LOC and Abt IRB's will review the updated study documents.

Table 4 Overview of PATH study steps, tasks, and data collection opportunities

PATH step	Main Tasks	Data Collection
1. Train the trainers **(Section 12)**	▪ Abt will train key PATH study staff at LeMoyne-Owen College ▪ Abt will train Student Community Peer Educators at LeMoyne-Owen College ▪ Abt will train Resident President Community Peer Educators at the Memphis Housing Authority ▪ LOC to train MHC physicians and the Director of Outreach and Community Relations	Feedback from staff on training

PATH step	Main Tasks	Data Collection
2. Instrument Pre-testing	▪ Abt and LOC will pilot test the survey instruments, home assessment documents, and education materials in the target community	Feedback on Surveys, Education Session, Home Assessment tools
3. Participant Recruitment **(Section 9)**	▪ From Memphis Housing Authority (with help of Resident President CPE at monthly meetings in four developments) ▪ From Memphis Health Center (from physician referrals)	-
4. Informed Consent Process **(Section 10)**	▪ To be explained to Participants in a group setting by Project Coordinator/Lead Researcher ▪ To be reinforced in small-group setting by Student Community Peer Educators	-
5. Collect Personal Information/Assign PATH Participant ID **(Section 12)**	▪ Collect phone number of all study Participants to schedule surveys or to confirm responses ▪ Collect home addresses of Participants who have volunteered for the Home Assessment ▪ Schedule Home Assessment Date/Time ▪ Assign PATH Participant identification number	Address and phone number of Participants
6. First Survey **(Section 12)**	▪ Either self-administered or administered by Student Community Peer Educator ▪ Offered twice at each of four MHA buildings, offered twice at central MHC site ▪ Data transcription to occur at PATH office at LOC ▪ QA/QC to occur at Abt ▪ Secure storage on restricted networks at Abt and LOC ▪ Descriptive Statistics (See Step 10)	First Survey responses
7. Education Session **(Section 12)**	▪ To be conducted by Project Coordinator/Lead Researcher with assistance of MHC staff ▪ Reinforcement of key ideas by Student Community Peer Educator ▪ Offered twice at each of four MHA buildings, offered twice at central MHC site	-

PATH step	Main Tasks	Data Collection
8. Optional Home Assessment for MHC Participants (**Sections 12 and 14**)	▪ To be conducted by Student Community Peer Educators ▪ Offered once or twice at each of four MHA sites ▪ Data transcription to occur at PATH office at LOC ▪ QA/QC to occur at Abt ▪ Secure storage on restricted networks at Abt and LOC ▪ Descriptive Statistics (See Step 10)	Household floor plan, trigger information Validation of certain First Survey responses Sticky Trap (cockroach) Counts
9. Second Survey (**Section 12**)	▪ Either self-administered or administered by Student Community Peer Educator ▪ Offered once or twice at each of four MHA buildings ▪ (MHC participants to travel to MHA sites for Second Survey) ▪ Data transcription to occur at PATH office at LOC ▪ QA/QC to occur at Abt ▪ Secure storage on restricted networks at Abt and LOC ▪ Descriptive Statistics (See Step 10)	Second Survey responses

PATH step	Main Tasks	Data Collection
10. Overall data analysis (**Section 16**)	▪ Descriptive statistics o Percent responding each option to each survey question o Composition of Participant population (median age, sex, MHA development, household size, smoking in home, use pesticides, etc.) ▪ Correlations between different survey instrument measures of o asthma/trigger knowledge o behaviors to reduce asthma triggers o self-reported asthma trigger levels o Caregiver reported child's asthma symptoms and Caregiver QOL (for subset of Participants who care for asthmatics) ▪ Explore appropriate study variables for use in models o Single question response o Composite response based on responses to related questions ▪ Difference between First and Second Survey study variables o asthma/trigger knowledge o behaviors to reduce asthma triggers o self-reported asthma trigger levels o Caregiver reported child's asthma symptoms and Caregiver QOL (for subset of Participants who care for asthmatics) ▪ Correlations between self-reported trigger estimates (First and Second Surveys) and measured trigger levels (one-time Home Assessment), for subset of Participants who participate in Home Assessment o e.g., self-reported cockroach sightings with sticky trap cockroach counts ▪ Create models to explain changes in caregiver QOL as a function of study variables ▪ Stratification of results by key variables o e.g., participation in Home Assessment, whether an asthmatic resides in household, Participant evaluation of training effectiveness, etc.	-

PATH step	Main Tasks	Data Collection
11 Dissemination of results	▪ Progress reports to USAMRMC ▪ Preparation of a conference proceeding and journal article ▪ Report back of results to MHA and MHC communities	-

b. Study Variables

Main Effects: Pre-Post Education Knowledge, Behavior and Trigger Levels (Self-Reported)

To assess the main effects on all Participants, PATH study variables will be comprised of responses to the survey items. We are interested in the difference in the study variables before and after the education program. After gathering the data, we will perform exploratory analyses to compare single item responses from the First (pre-education) and Second (post-education) Survey. Within each survey, we will also explore the correlation between related item responses to do with asthma/trigger knowledge, behaviors to reduce triggers, and self-reported trigger levels. With this information, we can begin to combine related survey item responses into a scale, to provide a single, but more complex measure of the Participant's knowledge, behaviors, and trigger levels.

We have created survey questions for the PATH study by reviewing similar questions created for and validated in other similar studies, such as the Healthy Public Housing Initiative, the Asthma Amigos program, Abt SLAITS telephone surveys, National Survey on Environmental Management of Asthma and Children's Exposure to ETS. We have also created survey questions specific to our purposes and this study population.

This difference between the First and Second Survey responses (single or combined) may be assessed using paired t-tests for continuous variables, McNemar's tests for binomial non-independent variables, Chi-square tests, Fisher's exact test for small binomial sample sizes, the kappa statistic for reproducibility, and the Kruskal-Wallis test to compare means for non-normal (ordinal) data.

Sub Analysis 1: Participants who consent to a Home Assessment

For the subset of Participants who offer to take part in the Home Assessment, we will collect additional information that can be used to validate some of the self-reported items in the survey. For example, in the survey, we ask about pest sightings, holes in walls, food and garbage storage problems, mattress and pillow cover use, smoking in the home and other items that can be partially or fully validated in the Home Assessment.

In the Home Assessment, we will collect additional information though the use of sticky traps to collect cockroaches to determine the level of infestation and estimate trigger levels.

The data variables resulting from the sticky trap portion of the Home Assessment are:

1) The number and location of traps placed in the home.
2) The number of traps returned to the investigators.

3) The number of cockroaches in each trap.
4) The total number of cockroaches trapped in the home (sum of counts from all traps in the home).
5) The number of nights the trap was left in the home
6) The average number of cockroaches trapped in one night (#4/#5)
7) The average number of cockroaches per trap will be calculated (#4/#2)
8) The average number of cockroaches per trap per night will be calculated (#7/#5)
9) Categorized infestation severity, according to **Table 5** below
10) Estimated Bla g 1 and Bla g 2 levels, according to Equations 1 and 2 below

Table 5. Categorization of Cockroach Infestation Severity

Criteria referring to items above	Infestation Severity
Zero (0) Roaches Trapped (Item 4)	None
Less than 10 total cockroaches trapped in the home (Item 4)	Low
Less than 10 cockroaches trapped per trap/per night (Item 8), but more than 10 total roaches trapped (Item 4)	Moderate
Between 10 and 25 cockroaches trapped per trap/night (Item 8)	High
More than 25 Roaches trapped per trap/ per night (Item 8)	Severe

The cockroach allergen levels will be estimated from the nightly average cockroach counts (Item 6, above). Wang and colleagues, 2008, give regression equations for estimating Bla g 1 and Bla g 2 levels from sticky trap data, shown in Equation 1 and 2 below.

$$\text{Log (Bla g 1)} = 0.01 + 0.77 \log (\text{trap count}) \qquad \text{Equation 1}$$

$$\text{Log (Bla g 2)} = 0.07 + 0.80 \log (\text{trap count}) \qquad \text{Equation 2}$$

Sub-Analysis 2: Participants who are Caregivers of a Child with Asthma

For the subset of Participants who are care for an asthmatic child, we ask an additional 15 - 20 survey questions related to the caregiver's quality of life and the caregiver's assessment of the child's asthma symptoms. To assess caregiver quality of life, we make use of the Juniper Pediatric Asthma Caregiver's Quality of Life questionnaire (PACQLQ). It measures the problems that parents of children with asthma experience as a result of their child's asthma. There are 13 questions in two domains (activity limitation and emotional functioning). The questionnaire can be self-administered and has 7-point response options. A 0.5 point change is considered significant.

The study variables, linked to the study objectives described in **Section 5**, are summarized in **Table 6** below.

Table 6. Study Objectives related to Study Variables

Hypothesis	Study Objective (Participants)	Study Variables
1a	Asthma Knowledge (all)	Same questions in First and Second Survey, regarding (approx. 8 questions) • changes in the airway • asthma symptoms • asthma facts • steps to control asthma • asthma triggers (general)
1b	Indoor Asthma Trigger Knowledge (all)	Same questions in First and Second Survey, regarding (approx. 3 questions) • dust mites • ETS • mold • Cats and dogs • Indoor chemicals • Nitrogen dioxide
2	Behaviors that Reduce Indoor Trigger Levels (all)	Same questions in First and Second Survey, regarding (approx. 17 questions) • Washing of bed sheets • Not smoking in the home • Help for quitting smoking • Repairing cracks and holes in wall • Using exhaust fans • Reducing clutter
3a	Self-reported Trigger Levels (all)	Same questions in First and Second Survey, regarding (approx. 24 questions) • smoking • water damage • evidence of mold • pest sightings
3b	Measured Trigger Levels (subset who participate in Home Assessment)	Information from Checklist, Floor Plan, and Sticky Trap Assessment from one-time Home Assessment, such as • Sticky trap counts • evidence of smoking • water damage • evidence of mold • pest sightings • clutter

Hypothesis	Study Objective (Participants)	Study Variables
4a	Caregiver Quality of Life (subset where Participant cares for an asthmatic)	Responses to Juniper Mini-Asthma Caregiver Quality of Life instrument in First and Second Survey (approx. 13 questions), regarding • Feelings related to child's asthma • Interference of child's asthma with caregiver's and family's daily activities • Whether child's asthma contributes to caregiver's Sleepless nights • Whether child's asthma contributes to caregiver's Sense of worry/concern
4b	Asthmatic's symptoms, as reported by Caregiver (subset where Participant cares for an asthmatic)	Same questions (approx. 3 questions) in First and Second Survey, regarding • Emergency room visits • Use of peak flow meter • Use of an asthma management plan
5	Explanatory QOL Models (for subset of Participants with asthmatic in home)	Explain QOL and asthma symptoms changes as a function of study variables Examine modifying factors Use variables constructed in 1a, 1b, 2, 3a, 3b

We will assess changes in study variables between the First and Second Survey (1a, 1b, 2, 3a, 4a, 4b), correlations between self-reported and measured triggers (3a, 3b), and explanatory variables for changes in caregiver QOL (5).

The response data may be stratified in many ways, such as:

- Presence of an Asthmatic in the Household
- Participation in Home Assessment
- Whether Participant found the PATH study to be useful
- Size of household
- MHA or MHC Participant
- If MHA, reside in Foote, Cleaborn, GE Patterson, or Montgomery Plaza developments
- Length of time residing in Memphis, in current residence
- Whether Participant bears primary responsibility for chores, home improvements
- Date of renovation of home/development
- Relationship of Participant to asthmatic
- Participation in another asthma education program in last 6 months
- Sex of Participant
- Sex of child
- Number of nights per week asthmatic spends at Caregiver's residence (4, 5, 6, 7)
- Self-administered survey or interview-administered

- If interviewer-administered, interviewer effect
- Whether the Participant found the training to be useful

Of the above potential ways to stratify the data, we might expect: the presence of an asthmatic in the household to make Participants more likely to adopt behaviors that might reduce indoor asthma triggers; those who participate in the Home Assessment to be more likely to adopt behaviors that might reduce indoor asthma triggers; larger households to have a harder time adopting behaviors that might reduce indoor asthma triggers; differences across MHC or MHA Participants (and across MHA developments); longtime Memphis residents to be more aware of local medical resources; Participants who are responsible for chores to be more likely to adopt behaviors to reduce indoor triggers; and older homes to have higher levels of certain triggers. Some of the stratification variables might result in categories too small to derive meaningful conclusions. For example, if most of the Participants are adult women, stratifying by the sex of Participant might not be meaningful. Likewise, if most asthmatics spend about the same number of nights per week at the Caregiver's residence.

c. Volunteer Sample

While the PATH study employs a convenience sample of volunteers, we expect to reach our target population (low-income, minority residents with high rates of asthma) through recruitment efforts at the Memphis Health Center and Memphis Housing Authority. At the Memphis Health Center, parents of children with asthma will be referred to the PATH program by physicians during clinical visits. At the Memphis Housing Authority, adult volunteers who are parents or guardians of children (with or without asthma) will be recruited from monthly building meetings at four developments. It is not necessary for children to have asthma for inclusion of their parents or guardians into the study. Instead, study data will later be stratified based on the asthma status of the child. Non-asthmatic children can still benefit from the program since (1) we expect there to be high rates of undiagnosed asthma in this community and (2) dust mite and cockroach allergens have been implicated in the development of asthma.

d. Reliability and Validity

Reliability

We can use the test/retest method to assess reliability for all Participants by examining select survey items that appear on both surveys, but whose response is not expected to change over the time period of the study (e.g., place of residence, number in the household). We can test for a difference between self-administered versus interviewer-administered surveys. For interviewer-administered surveys, we can assess inter-observer reliability (i.e., whether surveys administered by certain interviewers had a tendency to display certain results). We can also assess inter-observer reliability for the Home Assessment visits. (Note: small sample sizes may limit the conclusions we can draw from inter-observer evaluations.)

We can further assess reliability using checks for internal consistency. For example, we will ask the Participants approximately eight questions related to asthma knowledge in the surveys. We expect the responses to these questions to be correlated for each Participant. We will perform internal consistency checks for asthma trigger knowledge, and self-reported trigger levels.

Validity

In developing our survey instrument for the main pre-/post-education effects, we used items that were previously used and validated elsewhere. Other similar programs whose questionnaires we studied were the Healthy Public Housing Initiative, the Asthma Amigos program, Abt SLAITS telephone surveys, National Survey on Environmental Management of Asthma and Children's Exposure to ETS. We also make use of Juniper asthma quality of life scales whose reliability and validity are described below.

We employ the Juniper Pediatric Asthma Caregiver's Quality of Life questionnaire (PACQLQ) to measure the problems that parents of children with asthma experience as a result of their child's asthma. The questionnaire has 7-point response options where a 0.5 point change is considered significant. The PACQLQ has shown excellent reliability, responsiveness, and longitudinal validity.

We based our Home Assessment checklist on previously developed and validated checklists, such as the Community Environmental Health Resource Center[1]. We also follow standard collection, storage, and count procedures for the sticky trap cockroach evaluation. For a subset of study Participants who participate in the Home Assessment, we can cross-validate self-reported trigger levels with measured trigger levels. For example, in the survey we ask about pest sightings, holes in walls, food and garbage storage problems, mattress and pillow cover use, smoking in the home and other items that can be partially or fully validated in the Home Assessment. While it would be ideal to conduct two Home Assessments – one after the First Survey and one after the Second Survey - it was not practical for this study. However, performing the Home Assessment once will help to validate the First Survey responses.

We also will examine internal measures of validity. For example, if an asthmatic resides in the household, we might expect the household to be more likely to adopt behaviors that reduce indoor asthma triggers. We can assess whether the main effects are greater for Participants where an asthmatic resides in the household versus where one does not. By collecting information on whether the asthmatic has participated in another asthma education effort in the past 6 months, we can determine whether this has an impact on the increase in asthma knowledge between the First and Second Surveys. We cannot control for the fact that after the education program, study Participants may be motivated seek out more information about asthma, thus an increase in knowledge at the Second Survey may not be due solely to the education program. In fact, it is the hope of the PATH study that Participants will do just that. The PATH program will provide some information, tools (pending successful donation requests), and resources to MHA and MHC members in the hope that greater learning and change can occur.

7. Study Population

The PATH study aims to recruit 200 parents or guardians of a child, with or without asthma, living in a low-income neighborhood in Memphis, Tennessee. This area is predominantly African-American. Only adults will be recruited into the study, since they will likely be the ones to adopt the household changes in behavior that the PATH study promotes. One group of Participants will be recruited from

[1] From Community Environmental Health Resource Center website, accessed April 2008: http://www.cehrc.org/tools/cockroaches/index.cfm

four public housing developments chosen for their likelihood to house families and their proximity to LeMoyne-Owen College. Relationships have been established by LOC with both the MHA management and the leaders of the Resident's Groups. Another group of Participants will consist of referrals from the Memphis Health Center. It is likely that this group will reside in the same geographic area as the Participants from the MHA, but not necessarily in public housing. All Participants will receive the same two surveys and education session. (Due to resource constraints, only MHA Participants will be offered the Home Assessment.) Skip patterns on the survey forms will allow for questions specifically tailored to MHA residents, MHC referrals, and those living with an asthmatic in the home.

a. Memphis Housing Authority (MHA)

The Memphis Housing Authority (MHA) is governed by a seven-member Board of Commissioners, appointed by the Mayor of the City of Memphis and confirmed by the Memphis City Council. The U. S. Federal Housing Authority (FHA) was established in 1934. The following year Memphis became the second city in the nation, following New York, to establish a local housing authority. Under Chapter 615 of the Private Acts of 1935, the Tennessee General Assembly authorized the Memphis Housing Authority (MHA). From 1970-1975 the number of public housing units in Memphis increased from nine to twenty-two[2].

The PATH Asthma project has chosen to focus on four housing developments. These were chosen because they are more densely populated with families and are more likely to have potential Participants who will meet the inclusion criteria of the study. The names of the developments and the number of households/units per development are: Foote Homes (420), Cleaborn Homes (460), Montgomery Plaza (100), and G.E. Patterson Point (40). All developments are located in the west-central portion of Memphis. The MHA developments selected for this study are predominantly populated by African American residents - at least 99.5%. Figure 1 below displays the locations of the four housing developments.

[2] From City of Memphis webpage, accessed May 1, 2008: http://www.memphistn.gov/framework.aspx?page=545

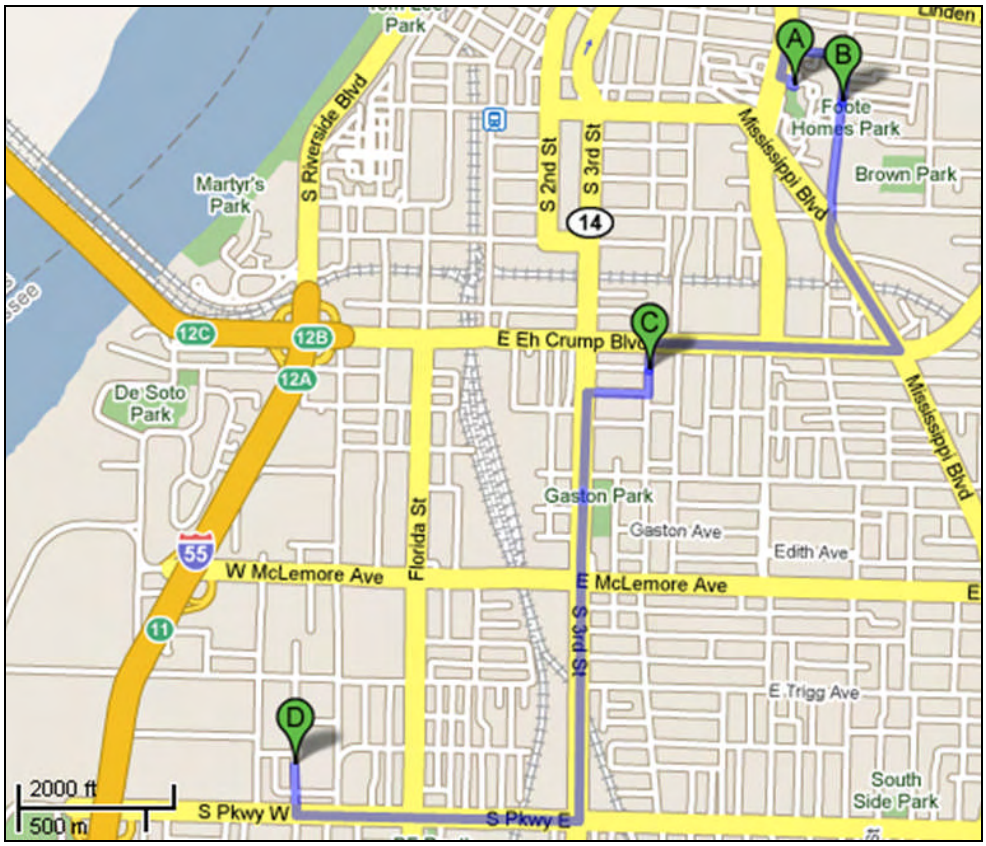

Figure 1. Geographic Locations of the four MHA Developments in the PATH study

A: Foot Homes, 521 Vance Park Pl
B: Cleaborne Homes, 430 S. Lauderdale St
C: G.E. Patterson Point, 886 Latham
D: Montgomery Plaza, 1395 Pennsylvania St

For each selected MHA development, over half of the residents are minors – below the age of 18 (**Table 7**). A majority of the residents in Montgomery Plaza, Foote Homes, and Cleaborn Homes live in households where the income is below $10,000 per year (**Table 8**). Between 22% and 64% of adults are employed either full- or part-time. (When considering only non-disabled adults, these values rise to between 27.2% and 78.0% are employed either part-time or full-time[3]) (**Table 9**).

[3] This figure is calculated by the following equation: total working / (total number of residents – minor children – disabled) = employment percentage of non-disabled non-minors.

Table 7. Demographic Information for the four MHA Developments in the PATH study

Development Name	Heads of Household, age 18-61 (%)	Heads of Household, Age 62+ (%)	Number of Other Adults (%)	Number of Minor Children (%)	Total Number of Residents (%)
Foote Homes	346 (33%)	56 (5%)	56 (5%)	615 (57%)	**1073 (100%)**
Cleaborn Homes	339 (32%)	35 (3%)	72 (7%)	624 (58%)	**1070 (100%)**
Montgomery Plaza	73 (23%)	17 (5%)	25 (8%)	204 (64%)	**319 (100%)**
G.E. Patterson Point	37 (28%)	3 (2%)	13 (10%)	78 (60%)	**131 (100%)**

Table 8. Income Data for the four MHA Developments in the PATH study

Development Name	Households with Income ($0-$4,999)	Households with Income ($5k-$9,999)	Households with Income ($10-$19,999)	Households with Income ($20,000+)	Total Percentage for Each Development
Foote Homes	40.8%	35.1%	20.4%	3.7%	**100%**
Clearborn Homes	48.7%	34.5%	14.7%	2.1%	**100%**
Montgomery Plaza	47.8%	32.2%	20.0%	0.0%	**100%**
G.E. Patterson Point	10%	7.5%	57.5%	25.0%	**100%**

Table 9. Employment Status for Adults at the four MHA Developments in the PATH study

Development Name	Employed Full-Time	Employed Part-Time	Student Full-Time	Disabled or At Home	Total Percentage for Each Development
Foote Homes	16.6%	12.0%	3.5%	67.9%	**100%**
Cleaborn Homes	7.4%	16.1%	1.8%	74.7%	**100%**
Montgomery Plaza	10.4%	11.3%	6.1%	72.2%	**100%**
G.E. Patterson Point	40.0%	24.0%	10.0%	26.0%	**100%**

b. Memphis Health Center (MHC)

The main Memphis Health Center site is a federally funded community health center serving underserved populations in Memphis, Tennessee and surrounding areas. In 1969, initial concerns over inequities and disparities in health care access prompted a group of Memphis, Tennessee

residents, leaders, and socially concerned individuals to formally identify health care problems and develop a plan of action. Incorporating under the name, Memphis Health Center (MHC) these community activists organized a Board of Governors and in 1972, submitted and received a 330 CHC (Community Health Center) grant from the U.S. Office of Equal Opportunity for start-up funding. The MHC officially opened its doors for service in two trailers located at 360 E.H. Crump Boulevard. In 1983, Memphis Health Center, Inc. became one of the first ten ambulatory health care centers in the nation to be accredited through the Joint Commission on Accreditation of Healthcare Organizations (HCAHO)[4].

The Memphis Health Center is also a member of the Tennessee Primary Care Association, the professional organization of the 24 federally funded health centers throughout the state. The community health centers each participate in the Health Disparities Collaborative, a national effort to improve health outcomes for all medically underserved people with chronic diseases, such as diabetes, cardiovascular disease, and asthma. Community health centers are eligible for the federal 340B Drug Pricing Program which provides significant savings on pharmaceuticals for their patients.

The Memphis Health Center provides a wide range of services on a sliding fee scale, including clinical services (immunizations and early screenings, family practice, OB-GYN, internal medicine, dental, medical laboratory, pharmacy, and radiology), dental services (preventive services and diagnostic exams), and community health services (family planning, health education, Women Infant and Children (WIC) services onsite, homeless outreach, and school-based clinics).

MHC's target population consists of low-income elderly, low-income school aged children and their families, and public housing residents. Adolescents comprise 31% of the population of MHC users. Elderly persons over 65 years of age comprise 15% of the MHC service area. The user population of MHC is 95% African American. Eighty-five percent of the African American MHC user population is at or below the federal poverty guidelines. Twenty-nine percent of the African American MHC user population is unemployed and 67% is female.

8. Inclusion/Exclusion Criteria

The PATH study proposes to educate Participants about asthma triggers that can be found in the home, and steps they can take to reduce those triggers, for their own health as well as the health of their children and other family members. Recruitment efforts will be targeted at four Memphis Housing Authority developments and the central Memphis Health Center site. Since most of the indoor asthma trigger-reducing actions would be undertaken by an adult, we chose to restrict study participation to those over the age of 18. Rather than recruiting only parents or guardians (sometimes referred to as caregivers) of asthmatic children, we chose to recruit all parents or guardians of children due to high rates of undiagnosed pediatric asthma in many low-income communities. Furthermore, the PATH study aims to reduce triggers thought to lead to the development as well as the exacerbation of asthma, so an asthma diagnosis is not necessary to experience the potential benefit of the program.

Since the child must spend a significant portion of his/her time in the home of the parent or guardian to experience the potential benefits of the program, we will further request that the child spend more

[4] From Tennessee Primary Care Association webpage, accessed May 1, 2008: http://www.tnpca.org/hcenters/memphis.htm

than four (4) nights per week at the residence, during the school year. (Some children may live elsewhere during the summer, in which case they should be included, and some children may only live in Memphis during the summer, in which case they would be excluded.)

Rather than excluding potential participants based on items that might confound the effectiveness of the asthma education program, such as whether the caregiver has participated in another asthma education program in the past six months, or whether the child spends less than seven (7) nights per week at the caregiver's home, we choose simply to collect information on these variables through the surveys. We can then analyze the study results stratifying on these variables.

In summary, we will recruit:

- parents or guardians (caregivers) of children, regardless of the asthma status of the child;
- caregivers residing in four Memphis Housing Authority developments or referred to the PATH study from the central Memphis Health Center site;
- caregivers with whom the child resides more than four (> 4) nights per week, during the school year (approximately 60% of the time).

Should there be persons from the Memphis Housing Authority interested in the PATH study who do not meet the inclusion criteria, these persons will be directed to contact the Resident President of their development. The Resident Presidents will receive training prior to the study and will be in a position to schedule an education session on indoor asthma triggers to be delivered by the Project Coordinator/Lead Researcher and/or staff from the Memphis Health Center at a Memphis Housing Authority development. (Due to the nature of physician referrals, it is not expected that there will be persons from the Memphis Health Center who will be interested in the PATH study who do not meet the eligibility criteria.)

We expect to recruit both women and minorities in the PATH study; neither group will be excluded from participation consistent with the Belmont Report and recent congressional legislation.

9. Description of the Recruitment Process

The PATH staff followed deliberative steps to establish a working, trusting and supportive relationship with key community partners, the Memphis Housing Authority and the Memphis Health Center. Our partnerships with the MHA and the MHC will facilitate recruitment of potential volunteers and implementation of the study.

Contacts with the MHA and MHC were initiated during the development of the study proposal. After USAMRMC approval of the PATH study, key MHA and MHC representatives were identified and included as members of the weekly LeMoyne-Owen College PATH (LOCPATH) planning group. Our planning process began with Director of MHA Human Resources, Mrs. Jackie Partee, and the Chair of MHA Resident Association Council of Presidents, Mr. Albert Sanders. Between November 2007 and February 2008, we introduced our MHA partners to the PATH study, explained our interest in the MHA population and explored the potential of recruiting at least 200 Participants. We repeated our efforts with the MHC in March 2008 when we met with Mr. William Jackson, Chief Executive Director; Dr. Oscar Webb, Chief of Medicine; and Mrs. Rose Dugger, Director of MHC Outreach and Community Relations. The Director of MHA Human Resources, the Chair of MHA Resident

Association Council of Presidents, and Director of MHC Outreach and Community Relations will continue as members of the LOCPATH group through completion of the study.

The MHA and MHC representatives provided invaluable input into decisions related to who, what, when, where and how to recruit potential volunteers, implement the study, and complete data collection. Their knowledge and understanding of the culture and processes of their respective populations were extremely helpful in working out recruitment and implementation details.

Recruitment activities are expected to result in the identification of approximately 200 study Participants. Of the total of 200 Participants, it is expected that at least 100 will complete both surveys. Of the completed surveys, it is expected that at least 50 Participants will a have an asthmatic in the home. It is also expected that at least 60 will agree to a Home Assessment (more intensive education program and data collection offered to MHA Participants). Flexibility and convenience will be built into the recruitment schedule so that interested MHC volunteers will have the option to attend a MHA planned recruitment meetings or that interested MHA volunteers will have the option to attend a MHC recruitment meeting. The recruitment process and intervention activities are outlined in **Table 10** below.

a. Memphis Housing Authority (MHA)

Potential Participants will be recruited from the MHA from September through October 2008. Our recruitment target is a total of 200 Participants, with a subset of 60 who will agree to a Home Assessment. Recruitment will occur during monthly scheduled meetings of the Resident Housing Associations. Each housing development has a Resident Association. The Association meetings offer an efficient recruiting venue because MHA has a minimum mandatory attendance policy for all adult residents. Flyers are routinely used by the Presidents as reminders of the meetings and to announce the monthly meeting agenda. PATH will be included on the agenda and acknowledged as one of the purposes of the meetings. At the monthly meeting at each of the four developments in September and October 2008, PATH's Project Coordinator/Lead Researcher will explain the study, our need of volunteers, what is expected of volunteers, and the informed consent process (**Table 10**). The meeting will be adjourned for those MHA residents who do not have an interest in participating in the study.

Those who express an interest in the study will remain to meet in small groups with Student Community Peer Educators (CPEs). The small group sessions will encourage individuals to raise questions about the study and will provide the opportunity for one-to-one assistance with informed consent and scheduling. The Resident President Community Peer Educator (one per housing development) will circulate to each group to assist as needed. The presence of the Resident President will encourage participation, and identify this person as a study resource for the Participants, and as an advocate for the residents. After the small group session, the CPEs will provide the Participants with a calendar outlining the date/time/location of the First Survey, education session, Second Survey, and Home Assessment (if desired). The First Survey should occur immediately after the informed consent process, and the scheduling of the Home Assessment should occur at this first meeting as well.

Table 10. Recruitment and Intervention Activities in the Partnership for Asthma Trigger-free Homes (PATH) Study

Month	Memphis Housing Authority (MHA) Activity	Memphis Health Center (MHC) Activity
August 2008	**No activity**	**Recruitment** • MHC Physicians referral of potential Participants • Potential Participants interviewed by MHC's Director of Outreach & Community Relations • Follow-up of potential Participants by PATH staff
September 2008	**Recruitment** • At MHA development monthly meetings **Informed Consent** Home Assessment scheduling **First Survey** **Location:** 4 MHA community centers.	**Recruitment** • MHC Physicians referral of potential Participants • Potential Participants interviewed by MHC's Director of Outreach & Community Relations • Follow-up of potential Participants by PATH staff
October 2008	**Recruitment** • At MHA development monthly meetings **Informed Consent** Home Assessment scheduling **First Survey** **Location:** 4 MHA community centers. _____ **Education Session** (first MHA offering) **Location:** 4 MHA Community Centers	**Recruitment** • MHC Physicians referral of potential Participants • Potential participants interviewed by MHC's Director of Outreach & Community Relations • Follow-up of potential Participants by PATH staff _____ **Overview Meeting** (first MHC offering) • **Informed Consent** • **First Survey** • **Education Session** **Location:** MHC Common Room
November 2008	**Education Session** (second MHA offering) **Location:** 4 MHA Community Centers _____ **Home Assessments** (first offering) **Location:** 4 MHA Community Centers	**Overview Meeting** (second MHC offering) • **Informed Consent** • **First Survey** • **Education Session** **Location:** MHC Common Room

Month	Memphis Housing Authority (MHA) Activity	Memphis Health Center (MHC) Activity
December 2008	**Home Assessments** (second offering, if needed) **Location:** 4 MHA Community Centers	**No Activity**
January 2009	**Second Survey** **Location:** 4 MHA Community Centers	**Second Survey** **Location:** 4 MHA Community Centers
February 2009	**Second Survey** (second offering, if needed) Saturday meeting date **Location:** 4 MHA Community Centers	**Second Survey** (second offering, if needed) Saturday meeting date **Location:** 4 MHA Community Centers

b. Memphis Health Center (MHC)

At the Memphis Health Center, parents or guardians of children with asthma will be recruited through physician referrals from August through October 2008. MHC Physicians will identify suitable potential volunteers during their scheduled clinical appointments. The timeframe for recruitment extends over three months because of limited encounters with asthma patients in terms of total numbers and frequency. The physicians will briefly explain the PATH study and need of volunteers. If the Participant is interested in participating in PATH, he/she will be referred to MHC Director of Outreach and Community Relations, Mrs. Rose Dugger, who will give the Participant a brochure and collect the Participant's contact information. The Community Relations Director will then send this information electronically to the PATH Administrative Assistant. Student CPEs will assist the PATH Administrative Assistant in contacting potential Participants and invite them to a recruitment meeting at the MHC. There will be at least two scheduled meetings for the MHC Participants to choose from: the first in September and the second in October. These meetings will be identical in terms of the material and information presented, and will parallel the recruiting meetings at the MHA.

At each MHC recruiting meeting, the Project Coordinator/Lead Researcher will meet with the interested study Participants to explain the study, our need of volunteers, what is expected of volunteers, and the informed consent process. Following the presentation, volunteers will be divided into small groups guided by Student CPEs. These sessions will encourage individuals to raise questions about the study and will provide the opportunity for one-to-one assistance with informed consent. After the small group session, the CPEs will provide the Participants with a calendar outlining the date/time/location of the First Survey, education session, and Second Survey. The First Survey should occur immediately after the informed consent process. See **Table 10** for details. The Home Assessment portion of the study will not be offered to the recruits from the Memphis Health Center due to the increased logistics, resources, and safety concerns involved with travelling to several housing sites**.**

c. Compensation Plan

Participants will receive a total of $50 in Wal-Mart gift cards as appreciation of their time and effort. Wal-Mart was chosen because it offers a "one-stop" shopping convenience, is a popular shopping destination for the study audience, and sells items to reduce indoor asthma triggers (such as mattress covers, Tupperware containers, and allergen-free teddy bears).

The compensation will be dispersed to MHA Participants in three installments of $10/$15/$25. The first gift card of $10 will be awarded after the First Survey is completed. The second gift card of $15 will be awarded after Education Session is completed. The third gift card of $25 will be awarded when the Second Survey and (optional) Home Assessment are completed. MHA Participants who take part in the Home Assessment component of the project may receive additional items, such as mattress covers and pillow cases, that might help to reduce indoor asthma triggers.

The compensation will be dispersed to MHC Participants in two installments of $25/$25. The first gift card of $25 will be awarded after the First Survey and Education Session are completed. The second gift card of $25 will be awarded when the Second Survey is completed.

Note that all subjects will receive the same amount of total compensation ($50), but the payout schedule for Participants recruited from the Memphis Housing Authority will be done in three installments, whereas for Participants recruited from the , Memphis Health Center it will be done in two installments. Subjects recruited from the Memphis Housing Authority will interact with PATH staff three times: 1. First Survey ($10); 2. Education Session ($15); and 3. Second Survey ($25). Subjects recruited from the Memphis Health Center will undergo all the same activities, but at two time periods. They will interact with PATH staff twice: 1. First Survey ($10) and Education Session ($15), for a total of $25; and 2. Second Survey ($25).

d. Recruitment and Advertising materials

Flyers will be used in the four MHA developments to announce Resident Association meetings and to remind volunteers of the phases of the study. A brochure will be used to recruit MHC and MHA volunteers. The brochure highlights essential information about the study, our need for volunteers and what is expected of the volunteers. Upon recruitment, Participants will be given a calendar outlining the timing, sequencing, and location of PATH study events (First Survey, Education Session, Second Survey), and the Project Coordinator contact information.

→ Please find the Recruitment and advertising materials in **Section D – Advertisements Used to Recruit Volunteers**.

10. Description of the Informed Consent Process

As described in **Section 9**, the informed consent process will follow the volunteer's recruitment into the study. Interested volunteers from both the Memphis Housing Authority and the Memphis Health Center will receive verbal and written explanations of informed consent, potentially aided through the

use of a PowerPoint presentation. The Project Coordinator/Lead Researcher will first describe the study and informed consent process in a group setting. After an overview of the study, the interested volunteers will have the opportunity for one-on-one interaction with the Student Community Peer Educators to review study information and to ask questions. Interested volunteers can read the consent forms themselves or have the forms read to them by the Student Community Peer Educator before deciding whether to participate in the study. Volunteers will be informed that they may withdraw from the study without penalty (loss of benefits they would otherwise enjoy outside of the study) at any time. Two copies of the consent form will be provided and signed – one for the PATH study records and one for the Participant's personal reference.

At each MHA recruitment meeting, the Project Coordinator/Lead Researcher will particularly emphasize that participation in the study is not mandatory, and that the volunteers have more than one option available to them to meet the MHA's mandatory community service requirement. At each MHC recruitment meeting, the Project Coordinator/Lead Researcher will stress that participation in the study will not impact the volunteer's eligibility for other MHC programs, treatments or services.

Potential Participants (volunteers) will have the opportunity to review the study and informed consent in the privacy their home if they so desire. The Memphis Housing Authority and Memphis Health Center meeting sites also offer space for Participants to retreat for privacy and reflection.

Informed consent information will be provided in English only, since the Memphis Housing Authority and Memphis Health Center community partners have indicated that English is the primary language spoken in the populations they serve.

Three different informed consent forms were created:

- Memphis Health Center: Surveys & Education
- Memphis Housing Authority: Surveys & Education
- Memphis Housing Authority: Home Assessment

→ These informed consent forms, along with the introductory PowerPoint presentation that may be used, can be found in **Section E – Informed Consent Documents**.

11. Volunteer Screening Procedures

No evaluations are required to determine eligibility/suitability for study participation.

12. Study Procedures/Research Interventions

The main research intervention that the Memphis Housing Authority and Memphis Health Center volunteer will experience is an education session with information on asthma disease and management, common indoor asthma triggers, and behaviors to reduce these triggers. Surveys will bookend the education session to evaluate its effectiveness. A subset of Memphis Housing Authority Participants may also volunteer for a Home Assessment intervention, where Student Community Peer

Educators, led by Resident President Community Peer Educators, will conduct a walk-through home survey of the volunteer's home to identify triggers and to provide tailored indoor asthma trigger feedback. Prior to the commencement of study activities with the Participants, Abt Associates Inc. will conduct "train-the-trainer" training with key LOC and PATH study staff.

a. Train the Trainer

PATH staff training involves three parts: training the trainers, training the Student Community Peer Educators, and training the Resident President Community Peer Educators. Abt Associates Inc. will develop the curriculum for the Participants, the Student Community Peer Educators, and the Resident President Community Peer Educators.

Train the Trainers.
Abt Associates Inc. staff will train key PATH study staff (Project Coordinator/Lead Researcher, Student Research Coordinator, identified Memphis Health Center staff) on the Participant curriculum, involving the nature of asthma and disease progression, management and treatment, asthma triggers and their reduction, including integrated pest management. Training will include the delivery of the survey instruments, data collection tools (such as CHECKBOX Online and the secure HTTP transfer tool), QA/QC, sticky trap procedures/counts, confidentiality procedures, and the maintenance of the Keysheet.

The Project Coordinator/Lead Researcher will deliver the Participant Education Session to the MHA and MHC Participants, with support from MHC physicians. Once trained, the Project Coordinator/Lead Researcher will then train the MHC staff on the Participant Education Session. Since they will be working closely with the Community Peer Educators, the Project Coordinator/Lead Researcher and Student Research Coordinator will also participate in the Community Peer Educator training.

Student Community Peer Educators.
Student Community Peer Educators will be drawn from the LeMoyne-Owen College Student Wellness Program, an existing health advocacy program at the college. Some of these students are from the same neighborhoods as the target study population. These students will be trained in the same curriculum as the key PATH staff, and they will assist and reinforce the Participant training, help with survey administration and the informed consent process, and conduct the Home Assessments. The Student Community Peer Educators will receive training in an LOC course (including IRB certification) as well as PATH-specific training (conducted by Abt Associates Inc. in Memphis) in order to perform all of these activities. As part of their training, they will participate in role playing activities, reinforcing such study activities as administering surveys and informed consent, interacting with Participants in their homes, and discussing and answering questions involving potentially sensitive topics (e.g., Participant's health, cleaning habits, etc.).

Resident President Community Peer Educators.
A group of community leaders, consisting of the Resident Presidents from the participating housing developments, will be trained in community health, asthma, and integrated pest management (IPM). Their curriculum will include community organizing and advocacy training. Key objectives for the Resident President Community Peer Educators training include:

1. Preparing Resident Presidents for the roles they will play in supporting the study including Participant recruiters, community liaisons, partners with LOC and its Student Community Peer Educators, and facilitators for Home Assessment access.

2. Promoting a general understanding of: 1) Community health and challenges associated with the prevalence of asthma; and 2) The PATH study.

3. Promoting a specific understanding of: 1) Resident Presidents' role(s) in the PATH study; and 2) Their long-term roles as community leaders and community health promoters.

4. Targeted skill-building in areas that will enable Resident Presidents to perform their designated study roles.

The Resident President Community Peer Educators will help in Participant (Caregiver) recruitment and in the Home Assessments where they will escort Student Community Peer Educators to Participant/Caregiver homes and help collect data (sticky traps).

b. Participant Education Session

The four Resident President Community Peer Educators will serve as facilitators for the study, assist with recruitment and the administration of surveys, Home Assessments, and educational sessions. They will serve as intermediaries between the PATH researchers and MHA residents who will participate in the research study. Likewise, the Director of MHC Outreach and Community Relations will serve as a facilitator for study Participants recruited from the Memphis Health Center.

The Project Coordinator/Lead Researcher will be responsible for training a group of Participants from the public housing community and surrounding neighborhood served by the Memphis Health Center. Student Community Peer Educator will provide one-on-one review of informed consent and reinforcement of the curriculum to the Participants during the education sessions. They will also administer surveys, schedule Home Assessment visits, and conduct the Home Assessments.

The key components of the education session are:

- Understanding asthma. What is it and what are the risks? What are common ways to treat asthma and what are resources in the community to help manage asthma? Information on Asthma Action plans and peak flow meters will be provided consistent with the Memphis Health Center standard procedures.
- Known and suspected asthma triggers. The education sessions will provide information on such triggers as animal allergens, house dust mites, cockroach allergens, indoor fungi (molds), outdoor allergens (pollens), tobacco smoke, and other indoor/outdoor pollutants.
- Identification of actions to take in the home to reduce triggers. The education session and materials identify what can be done in an indoor environment to control and reduce the presence of these triggers. For example, weekly washing of sheets/pillow cases at high temperature can reduce and/or eliminate dust mite allergens. Exposure to pets should be reduced in certain asthmatics, and the education session will encourage Participants to not allow the pet on furniture or in bedrooms. To eliminate or reduce pest problems, Participants will be encouraged not to leave food or garbage exposed and consider the use of bait to control cockroaches and more

intensive treatment for serious infestations. Fixing leaks and eliminating water sources associated with mold growth and pest infestations will be encouraged.

- Community Resources. Referrals to the Memphis Health Center will be given, for asthma as well as general medical care. Contact information for smoking cessation programs will be distributed. An asthma action plan will be distributed to Participants who care for an asthmatic child.

→ The Participant Education Session, Brochure handout, and Asthma Action Plan may be found in **Section F – Participant Education Session and Handout**.

c. Home Assessment

A subset of Participants will also have a detailed Home Assessment performed in their residence by the Student Community Peer Educators. (Participation in this portion of the study is limited to residents of the Memphis Housing Authority developments.) There will be a separate consent form specific to the Home Assessment portion of the study for interested MHA Participants to complete. After obtaining informed consent from the Participant for the Home Assessment, the Home Assessment date/time will be scheduled at the MHA recruitment meetings. The PATH Administrative Assistant, assisted by the Student CPEs, will call Participants to confirm the Home Assessments in the week prior to the visit. Mail may also be used to confirm the visits. All Home Assessments will be conducted on one or two Saturdays after the Education Session.

There are three goals to the Home Assessment:

1. Identify Triggers in Specific Homes
2. Provide a Tailored Reinforcement of Educational Session
3. Improve Dataset for Study Evaluation
    a. Validation of First Survey questions
    b. Additional data collection (sticky traps, etc.)

As part of the Home Assessment, Student CPEs will be provided with a checklist, an evaluation form, and a floor plan. They will spend approximately thirty minutes in each home, conduct the assessment in pairs and be escorted by the Resident President. (The Resident President will not stay for the Home Assessment.) The stages of the Home Assessment will include:

1. Introductions. Sit down with Participant, explain the Home Assessment and briefly review informed consent.
2. Walk through the unit. Sketch the apartment floor plan on provided form. (Sketch bedroom, kitchen, bath, etc. and location of major appliances) This skill will be practiced during the Student CPE training. The Student CPEs will have a specific checklist of things to look for (signs of pest activity in kitchen, food and trash storage, leaks in bathroom, pets and stuffed animals in bedroom etc.) Notations will be made of potential asthma trigger trouble spots on forms and sketch. These notations will include items in the apartment that need to be repaired (leaky pipes, structural damage etc.)

3. Placement of Sticky Traps. Sticky traps, to assess pest infestation problems, will be placed during the home during the walkthrough. The sticky traps will be clearly labeled when they are placed in the Participant's home with ID information such as unit #, Participant ID #, room, and location in kitchen (behind refrigerator, sink, stove) or bathroom (behind sink). Labeled plastic bags and sharpie markers will be given to the Participants so they can remove the traps after one week. Written instructions/warning information will be given to the Participants about the traps and when they should be collected. The student will also explain all the information verbally to the Participant during the visit. The Participant will be asked to place the traps in the provided plastic bags and return the sticky traps to the Resident President at the central office at the housing development where they reside. The traps will be delivered by the Resident President at each development to the Chair of MHA Resident Association Council of Presidents. The Chair will deliver the traps to the Student Research Coordinator at the PATH office located on the LOC campus. (It will be stressed to the Participant that it is important to not throw the traps away, and they will be asked to mark the date the trap was removed and placed in the bag on the outside of the bag (even if this date is different from when the traps are returned to the office).
4. Report of Results. At the end of the visit, the Student CPEs will present the Participant (resident) with a report they have prepared during the visit. The standardized report will include all of the targeted triggers, with a brief description of the trigger and a summary of ways to reduce this trigger. There will be a check box next to each targeted trigger which the Student CPE will mark if that trigger is a potential problem in the home.

The Home Assessment will take place after the First Survey and educational session. PATH study data will be stratified by whether the Participant received a Home Assessment to help evaluate the success of the Home Assessments.

During the visit, the Student CPE will reinforce the components of the educational session by giving specific advice in each room about what the Participant can do to reduce triggers (students will be trained to do this tactfully, in a non-judgmental way). This will be role-played in their training.

Incentives may be given to Participants who participate in the Home Assessment. We are pursuing donations for additional items such as mattress/pillow covers and Tupperware. These products will be given to the Participants by the Resident Presidents after they return the sticky traps. The Resident President will explain the purpose of these items and how to use them.

Students will be prepared as part of their training for unexpected situations and unrelated questions (illegal activities, questions about lead paint, management of other diseases, etc). Such situations will be role-played as part of their training curriculum. Students will be provided with specific community resources to refer the Participants to, but will not become involved in any issues outside the scope of the asthma trigger education.

→ All Home Assessment documents may be found in **Section G – Surveys and Data Collection Instruments**.

d. MHA Participant Experience

The following detailed outline describes all steps, in chronological order, that a PATH volunteer (Participant) recruited from the Memphis Housing Authority might experience.

1. PATH Advertising
    a. At MHA monthly meetings at each of four developments, preceding recruitment, advertised by flyers
    b. Through word-of-mouth from Resident President CPEs
    c. Through brochures
    d. Flyers and brochures provided in **Section D**
2. Recruitment
    a. Project Coordinator/Lead Researcher to explain PATH study to group at MHA monthly meetings at each of 4 developments
    b. Recruitment will occur at each development for a period of two months during Resident Association meetings
        i. Foote: (3rd Tuesday of each month at 3:00 PM)
        ii. Montgomery: (3rd Wednesday of each month at 3:30 PM)
        iii. Cleaborn: (3rd Thursday of each month at 1:00 PM)
        iv. GE Patterson: (3rd Monday of each month at 3:00 PM)
    c. Calendars will be provided to Participants listing this information (See **Section D**)
3. Consent Forms
    a. To occur immediately following recruitment at each development
    b. Will take approximately 15 minutes
    c. Project Coordinator/Lead Researcher will explain informed consent process in group setting
    d. Student CPE will review informed consent with interested Participants one-on-one within the small group setting
    e. There will be two Informed Consent forms
        i. one for educational program + surveys (all)
        ii. the other for a Home Assessment (optional)
4. Scheduling of Home Assessment visit for interested parties who have consented
    a. By Student CPE
5. Keysheet
    a. Personal Participant information will be collected on the keysheet (name, address, phone number) and a Participant ID # will be assigned.
    b. In all subsequent data collection instruments, the Participant will be identified through the Participant ID#.
    c. Only IRB-trained staff will have access to the keysheet.
6. First Survey Instrument
    a. To occur immediately following the informed consent
    b. Will take approximately 30 – 45 minutes
    c. Survey either to be self-administered or to be administered by Student CPEs
    d. Labeled by PATH Participant ID#
    e. Participants will receive $10 gift card to Wal-Mart.
    f. Participants will receive a calendar with dates/location of the Education Session, Second Survey and Home Assessment.
7. Education Session
    a. To occur one month after the First Survey

b. Will take approximately 2 hours
c. To be delivered by the Project Coordinator/Lead Researcher with the assistance of MHC physicians and nurse practioners
d. Curriculum will involve a presentation, as well as Participant engagement (asking what changes they can might; which ones might be easy/hard; how they have been impacted by asthma)
e. Location: in the common room of the four MHA developments
f. Refreshments will be provided given the time commitment
g. The Home Assessment schedule will be confirmed (if applicable)
h. The Second Survey will be scheduled.
i. Participant will receive a $15 gift card.
j. Participant will receive brochure handout and Asthma Action Plan (if applicable)

8. Home Assessment
    a. Only a subset of all Participants will give informed consent for and receive a Home Assessment (To be scheduled by the Student CPEs at the recruitment meeting)
    b. Home Assesments will occur on one or two Saturdays in the month following the Education Program.
    c. Will take approximately 30 minutes
    d. The PATH Administrative Assistant will send out a mail reminder and call the Participant to confirm appointment one week prior to Home Assessment visit.
    e. On the day of the Home Assessment, the Resident President for that development will escort two Student CPEs to the Participant's home.
    f. The Student CPEs will introduce themselves, remind the Participant why they are there, and briefly review the informed consent form the Participant signed at the time of recruitment.
    g. The Student CPEs will enter the home and perform all activities listed on the Home Assessment Instructions. They will perform an asthma trigger assessment, sketch the apartment, leave data collections tools and instructions with the Participant, and provide tailored indoor asthma trigger information to the Participant in their home.
        i. Floor Plan. The Student CPEs will complete a sketch of the residence, noting triggers and the location of the sticky traps.
        ii. Checklist. The Student CPEs will have a specific checklist of asthma triggers to look for (signs of pest activity in kitchen, food and trash storage, leaks in bathroom, pets and stuffed animals in bedroom etc.)
        iii. Sticky Traps. The Student CPEs will place four sticky traps in predetermined locations (e.g., behind the sink, stove, and refrigerator in the kitchen and behind the sink in the bathroom.) Location to be marked on Floor Plan. The Participants will be given instructions to return the sticky traps in one week's time to the Resident President who will wait in the manager's office located in their development.
        iv. Reinforcement of Educational Program. The Student CPEs will reinforce the educational program and tailor items to that residential unit.
    h. Student CPEs will leave the resident (Participant) with a report containing the results of the Home Assessment and actions the Participants may take.
        i. The Participant may also receive additional incentives for participation in Home Assessment, such as mattress covers and Tupperware items. These will be distributed by the Resident Presidents when the Participants return the sticky traps.

9. Second Survey Instrument
    a. Labeled by PATH Participant ID#
    b. To occur approximately 1 – 2 months after the Education session and optional Home Assessment
    c. Will take approximately 30 minutes
    d. The PATH Administrative Assistant, assisted by the Student CPEs, will contact the Participant to attend the MHA meeting at the appropriate time to complete the Second Survey
    e. Will take place in the community room at each building.
    f. The Student CPEs will remind Participants of informed consent.
    g. Participants will be asked if they have any questions
    h. Survey either to be self-administered or to be administered by Student CPEs
    i. Participant will receive a $25 gift card.
10. Information dissemination
    a. PATH staff will attend each of the four MHA development monthly meetings to review the study results with interested Participants and to re-distribute information about asthma resources.
    b. PATH staff will elicit feedback on the PATH education program, Home Assessment, and overall Participant experience.

e. MHC Participant Experience

The following detailed outline describes all steps, in chronological order, that a PATH volunteer recruited from the Memphis Health Center might experience.

1. Recruitment
    a. Physicians will identify caregivers of asthma patients for the PATH study for a period of three months.
    b. Those interested in the study will be referred to the MHC Community Relations Director, who will give them a brochure (See **Section D**)
    c. Director of MHC Outreach and Community Relations will collect the contact information of the interested person and send it electronically to the Project Coordinator/Lead Researcher
    d. The Project Coordinator/Lead Researcher will provide the contact information to the Student Research Coordinator and the Research Assistant.
    e. The Research Assistant and Student Research Coordinator, with the assistance of CPEs, will contact the interested persons to help them determine if they wish to participate in PATH.
    f. If the interested persons wish to become PATH Participants, they will be given the option of attending the First Survey, Education Session, and Second Survey sessions at either the central MHC site or at any one of the four MHA developments.
    g. Calendars will be provided to Participants listing this information (See **Section D**)
    h. The first MHC recruitment meeting will occur on the Fourth Wednesday of October. The second MHC meeting will take place on the fourth Tuesday of November. Both meetings will occur at 4:00 p.m.
2. Consent Forms
    a. To occur at the initial MHC Overview meeting
    b. Will take approximately 15 minutes

c. Project Coordinator/Lead Researcher will explain informed consent process in group setting
d. Student CPEs will review informed consent one-on-one with the interested Participants
e. Informed Consent will involve just consent for the educational program + surveys

3. Keysheet
    a. Personal Participant information will be collected on the keysheet (name, address, phone number) and a Participant ID # will be assigned. In all subsequent data collection instruments, the Participant will be identified through the Participant ID#.
    b. Only IRB-trained staff will have access to the keysheet.
4. First Survey Instrument
    a. To occur immediately following the informed consent
    b. Will take approximately 30 – 45 minutes
    c. Survey either to be self-administered or to be administered by Student CPEs
5. Education Session
    a. To occur immediately after the First Survey
    b. Will take approximately 2 hours
    c. To be delivered by the Project Coordinator/Lead Researcher and MHC staff
    d. Key concepts to be reinforced by Student CPE
    e. Will involve a presentation, as well as Participant engagement (asking what changes they can might; which ones might be easy/hard; how they have been impacted by asthma)
    f. Will be located in the common room of central MHC site
    g. Refreshments will be provided given the time commitment
    h. Participants will receive a $25 gift card after completion of First Survey and Education Session.
    i. Participants will receive a Brochure Handout and Asthma Action Plan.
6. Second Survey Instrument
    a. To occur approximately 1 - 2 months after the Education session
    b. Will take approximately 30 minutes
    c. The Administrative Assistant and Student CPEs will contact Participants to schedule an appointment for the Second Survey
    d. Will take place at the 4 MHA sites (MHC Participants are expected to reside in the same neighbourhoods as the 4 MHA sites and can be expected to travel to these sites.)
    e. The Student CPEs will remind Participants of informed consent.
    f. Participants will be asked if they have any questions
    g. Survey either to be self-administered or to be administered by Student CPEs
    h. Participant will receive a $25 gift card upon completion of the Second Survey.
7. Information Dissemination
    a. PATH staff will invite Participants recruited from MHC to attend one of the four MHA development monthly meetings to review the study results and to re-distribute information about asthma resources and elicit feedback on PATH

f. Attachments

→ Please find the following documents in **Section F – Participant Education Session and Handout**:

- Participant Education Session
- Participant Handout (Brochure)
- Asthma Action Plan

→ Please find the following documents in **Section G – Surveys and Data Collection Instruments**:

- First (pre-education) Survey
- Second (post-education) Survey
- Home Assessment forms

13. Description of Protocol Drugs or Devices

No drugs or devices will be used in the study. The Memphis Health Care center will be available for referrals of study Participants who may need medical treatment or asthma supplies such as peak flow meters, asthma action plans, etc.

14. Laboratory Evaluations

Home Assessments will be performed for a subset of all MHA Participants. As part of the Home Assessments, four sticky traps will be placed in the Participant's home for a period of seven days. The traps will be labeled with the Participant identification number, date placed, and location in the home. Participants will be given plastic bags in order to collect the samples. After seven days, the Participants will deliver the samples to the Resident President CPE in the main office of his development. The Resident President CPE will check-off the name of the Participant who returned the sticky traps. Then the Resident President will collect the sealed, labeled plastic bags containing the traps into one or more boxes. The plastic bags will be carefully placed flat in the box(es) to avoid crushing the trapped cockroaches. Only one layer of plastic bags per box is recommended, as otherwise the cockroaches may be crushed prior to counting. The Chair of the Presidents Council will collect the boxes from each development and deliver them to the Student Research Coordinator at the biology/chemistry lab at LeMoyne-Owen College. The boxes containing the traps may be placed in the freezer for several hours prior to counting in order to kill any remaining live cockroaches.

The Student CPEs, overseen by the Student Research Coordinator, will count the number of cockroaches in each trap and enter the data using pen or pencil onto the Sticky Trap Count form (summarizing the number of roaches caught per trap, per day, and aggregate measures as outlined in Table 3.) The Student CPEs will take digital photos of any traps that have many trapped cockroaches, trying to include the label in the photo. Following the counting and photography, this data will be transcribed electronically according to the data management plan in **Section 17**. Students will use personal protective equipment such as gloves and dust masks when counting the cockroaches to minimize their exposure to allergens. The samples will be disposed of after the counts are complete.

15. Sample Size Justification

Power calculations help determine the ability of a study to demonstrate an association if one exists. The power of a study is determined by the frequency of condition under study, the magnitude of effect, the study design, and sample size. We use power calculations below to estimate the minimum sample size to guide resource allocation and identification of target housing with a sufficient number of Participants. Values for the frequency of condition under study (i.e., percentage of people at baseline with knowledge of a specific item) and magnitude of effect (amount of change in level of knowledge expected after the intervention or Odds Ratio (OR)[5]) were obtained from similar published research.

Previous research suggests widely varying levels of knowledge and behavior regarding asthma triggers. For example, Krieger et al. (2005) report baseline values ranging from 6 to 94% for trigger reduction behaviors and odds ratios between 1 and 3. Using typical baseline values identified in Krieger et al (2005), we estimated the number of study Participants required to detect various changes in baseline knowledge. The number of Participants required (n = 65 to 165) is achievable for behaviors/knowledge with modest baseline values (25 to 50%) and moderate changes (OR of 2 to 3) as a result of the intervention (Table 11). For example, if the OR = 3, only 65 Participants would be required to statistically detect a change in behavior from 25% to 50% (or equally, from 50% to 75%), while almost 200 Participants are needed to detect a change from 5% to 13.6%.

Table 11. Number of Participants Required to Detect Specified Change in Knowledge Based on a Single Question.

Minimum Odds Ratio (OR)	Required number of Participants	Pre-education % with knowledge or behavior	Post-education % with knowledge or behavior
3	65	25	50
3	65	50	75
2	148	50	66.7
2	165	25	40
3	199	5	13.6

It should be noted that our sample size calculations indicate sufficient power to detect an 8% increase in knowledge (n = 199; 13.6% - 5%); this depends upon a somewhat high odds ratio and the fact that all recruited will complete the Education Session and both surveys. Attrition may not allow for the detection of changes, due to the decrease in sample size. Furthermore, sub-analyses will be conducted on caregivers of asthmatics and those who participate in the home assessment. These groups will have less Participants and therefore less power to detect statistically significant results.

[5] Odds Ratio—The ratio of two odds. In this case, the probability of occurrence of an event to that of non-occurrence in the post-intervention group divided by the probability of occurrence of an event to that of non-occurrence in the pre-intervention (baseline) group. For example, if before the intervention 30% of Caregivers washed bedsheets in very hot water (and 70% did not), but after the intervention half of Caregivers did so, the Odds Ratio would be: OR = (0.5/0.5) / (0.3/0.7) ~ 2.

16. Data Analysis

We will evaluate pre- and post- education knowledge of asthma triggers and Participants efforts at remedying those triggers through detailed surveys. Additional data will be collected from a home checklist for a subset of study Participants. These Home Assessments will both validate (and visually confirm answers to) the survey questions regarding general levels of indoor allergens and conditions that harbor these allergens, such as dust mites, molds, and cockroaches; and offer additional education to the Participants, with tailored, in home advice regarding asthma triggers. In addition, characterization of background levels of conditions that harbor indoor allergens will also be useful to determine population health risk and to design future intervention efforts. As a result of the Home Assessment, we will be able to evaluate if participation in this segment of the study led to greater adherence to behaviors to reduce triggers or a better understanding of asthma and its triggers. Data analysis steps are described below.

a. Understand the Data

The First and Second Surveys will be collected on paper forms, either self-administered or interviewer-administered (by Student Community Peer Educators). Hard copy surveys will be transcribed to the Checkbox Online software program, from which .csv summary data files can be downloaded.

Home Assessment checklists will be interviewer-administered. As part of the Home Assessment, sticky traps will be set by Student Community Peer Educator, collected by Participants, and counted by Student Community Peer Educators (overseen by Student Research Coordinator). Information from the checklists and sticky trap counts will also be transcribed to the Checkbox Online software program, from which .csv summary data files can be downloaded.

The following steps will be taken in order to understand the data collected. These steps will be completed after approximately 20 additional survey forms are entered into Checkbox Online. One of the 20 transcribed surveys will be compared to a scanned copy of the original survey to evaluate transcription accuracy. The original .csv data files downloaded from Checkbox Online will not be modified, instead copies of these files will be made and analyzed. Analyses will be conducted using SAS or Microsoft Excel, as appropriate. Logging information will be included in each data file, such as date, time, analyst, which data are being analyzed, and any other comments. All project files will be stored on secure drives (only PATH staff will have access) at LeMoyne-Owen College and Abt Associates Inc. The drives are backed up nightly.

Steps to understand the data include:
- calculate frequencies for each survey response item (e.g., % responding Yes/No/Don't Know)
- identify where missing responses (skipped questions) occur in surveys, Home Assessment checklists, and sticky trap returns; evaluate frequency of missing responses
- note categories in survey items where small numbers are present
- compare number of self-administered surveys to interviewer-administered
- compute number of Participants from MHC and MHA (Foote, Cleaborne, GE Patterson, and Montgomery Plaza)
- compute number of Participants who are 1. caregivers of *children with asthma*; 2. caregivers of *children without asthma*.
- compute the median, mean and range in age of Participants (all will be over 18)

- compute the household size and density (number of household members divided by number of bedrooms)
- evaluate number of Participants who have participated in another asthma education program

b. Create and Select Variables for Analysis

In order to analyze the appropriate study variables, the raw data may have to be reduced, condensed, or transformed.

Data Elimination

First, inappropriate or meaningless items may be eliminated. For example, responses such as "Don't know" or other unusable or illegible responses could be eliminated. (However, in many instances, the option "Don't Know" could be meaningful.) Items where Participants selected more than one answer (How often are sheets and pillow cases washed? "once a week" and "twice a month"); provided inconsistent responses (Do you have pets? "No." If yes, are they allowed in the bedroom? "Yes."); or clearly misunderstood the question being asked (How many bedrooms in your home? "Yes") should also be eliminated.

Categorize Responses to Survey Items

After examining the responses to survey items, it may be necessary to keep the response options separate or to combine items. For example, the survey question, How long have you lived in your current home?, offers four responses: "less than 6 months", "between 6 months and one year", "between 1 and 5 years", and "more than 5 years". It may be worthwhile to divide the responses into two categories, e.g., "less than 5 years" and "more than 5 years". Some responses may be categorized in terms of a cutpoint (e.g., whether the response is above or below the median response.)

In the Home Assessment checklist, there are specific questions related to a. pests; b. dust mites; c. mold; and d. chemicals in each room of the home. We may consider collapsing responses to obtain a single measure of "pests" (or other triggers) in each room or in the entire home.

Create Scales for Survey Responses

For questions evaluating asthma knowledge, of the type, "check all that apply" or "true/false", scales should be created to assign a score. For example, one question offers six potential statements that represent signs a person has asthma. Four are correct, and two are incorrect. The Participant was instructed to check all that apply. A score of 6 on the question is obtained if the Participant checked the four correct responses, and did not check the two incorrect responses. The score will be reduced by 1 if the Participant a. did not check a correct response, or b. did check an incorrect response. The highest score would be 6, the lowest 0. For "true/false" questions, a score of +1 will be given to correct response, a score of -1 to incorrect responses, and no score to responses that are left blank.

In the Home Assessment checklist, a scale may be created to evaluate the severity of the pests, dust mite, mold, or chemical triggers in the home. For example, if there were holes or cracks observed in 3 rooms, the score might be 3; if observed in one room, the score might be 1; if not observed, the score might be zero. A scale for the results of the sticky trap assessment has been provided previously in **Table 3.**

c. Data Analysis

Data may be analysed through univariate means, correlations, hypothesis testing and model building.

Univariate

For each First and Second Survey response item, we may compute frequency distributions and mean responses. (See surveys in **Section G**.)

Appropriate/Additional Variables

Several survey items deal with the same topic. We expect survey responses on asthma knowledge, for example, to be correlated within Participants. Thus, we may combine the eight or so survey responses regarding asthma knowledge into one, more complex, variable. We will calculate correlation coefficients (Pearson) between related survey items on the first and second survey in order to create these groupings.

Hypothesis Testing

We are interested in answering the following questions, related to our main study objectives.

Main Analyses (*all Participants*):

Does participating in PATH education program increase asthma knowledge, in general?
Does participating in PATH education program increase indoor asthma trigger knowledge, in particular?
Does participating in PATH education program promote behaviors that reduce levels of indoor asthma triggers?
Does participating in PATH education program reduce self-reported indoor asthma trigger levels?

Home Assessment Sub-Analyses (*Home Assessment Participants*):

What are the observed levels of indoor asthma triggers?
Are self-reported and observed levels of indoor asthma triggers correlated?
What are cockroach allergen levels in homes, estimated from sticky trap evaluation?

Asthma Sub-Analyses (*Participants with an asthmatic child in the household*):

Does participating in PATH education program improve the child's asthma symptoms (as reported by the caregiver) and asthma-related caregiver quality of life? (*subset of Participants who care for an asthmatic child*)
Which factors explain the change in the child's asthma symptoms (reported by caregiver) after the Education Session?
Which factors explain the change in asthma-related caregiver quality of life after the education session?

Paired t-tests (for continuous variables), McNemar's tests (for binomial non-independent variables), Fisher's exact test (for small binomial sample sizes), and the Kruskal-Wallis test (to compare means for non-normal, ordinal data) may be used to assess the change (if any) in Participant knowledge about asthma, in general, and indoor asthma triggers, in particular, between the First and Second Surveys.

The response data may further be stratified in many ways (whether the Participant received an optional Home Assessment or not, whether an asthmatic child resides in the household), and

differential education effectiveness assessed in the subgroups. We may use chi-squared tests to evaluate differences between subgroups. For example, we may examine if behavior promotion is greater if an asthmatic child resides in the household.

We may also use correlations to examine whether any symptom improvements were related to any improvements in indoor trigger levels.

Mixed Models

For Participants with an asthmatic child in the household, we may use mixed models to examine 1. overall improvements in quality of life; and 2. effect modification of quality of life.

The longitudinal model to examine overall improvements in quality of life over the course of the study is

$$Y_{ij} = \beta_0 + \beta_1 \text{Time}_{ij} + e_{ij} \qquad \text{Equation 1}$$

The general longitudinal model to examine effect modification is

$$Y_{ij} = \beta_0 + \beta_1 \text{Group}_i + \beta_2 \text{Time}_{ij} + \beta_3 \text{Group}_i \text{Time}_{ij} + e_{ij} \qquad \text{Equation 2}$$

Y_{ij}	Total PACQLQ response (continuous);
i	Participant;
j	Time point (before or after the intervention, 0 or 1);
Time	Continuous variable measured in weeks, before or after the education intervention;
Group	Binary or categorical level for each effect modifier.

To evaluate effect modification, whether the intervention is more effective at improving quality of life for some Participants, we can consider the following effect modifiers for Group in Equation 2.

Demographic: Age of caregiver, age of asthmatic child, sex of caregiver, sex of asthmatic child, highest education level completed by caregiver, MHA or MHC, housing development if MHA.
Individual Health Risk Factors: body mass index of asthmatic child
Medical Care Indicators: having a primary care physician
Indoor Environmental Factors: self-reported smoking in the home, gas stove in the home, pest sightings, pesticide use, dust mite levels

Many effect modifiers can be dichotomized at the median level (e.g., asthmatic age below median or asthmatic age above median). Other effect modifiers may be categorical in nature (e.g., four MHA developments, no/medium/high pesticide use.)

d. Interpretation of Results

We will compare results of the analysis to expected results, to results from similar studies, and to PATH study goals. The data analysis will also allow us to describe programs strengths, weaknesses, and to identify areas for improvement.

As part of the interpretation of results, we will also elicit feedback from key study partners, MHA and MHC staff and study Participants. We will use the interpretation of results, described above, as well as the feedback to create recommendations for MHA, MHC, PATH study staff.

e. Data Presentation Format

Data will be presented in USAMRMC progress reports, conference proceedings, journal articles, and reports to key study partners and Participants. Different types of data may be represented in different ways to different audiences.

Researcher text may be quoted, as can Participant evaluation of the program (with all identifiers removed.) Tables may be created to provide summary and descriptive statistics. Graphs may be created to Participant information (bar charts), changes over time and correlation between study variables (scatterplots), and fractions of the whole (pie charts).

17. Data Management

The data management plan involves several steps after the collection of data through paper forms. The original data collection tools will be scanned, entered electronically, and stored on secure networks at Abt and LOC. Only one document, the keysheet, will contain Participant names, telephone numbers, and addresses and link this to the PATH Participant ID#. Only PATH staff who have received IRB certification will be permitted to view or work with this sheet. Confidential project files will be transferred through both institutions using a secure HTTP portal. Non-confidential project files will continue to be transferred using electronic mail and Abt Associates Inc.'s Project Workspace tool.

a. Methods Used for Data Collection

In the PATH study, we will collect information from Participants through face-to-face interviews using at least four and up to five data collection forms. Information will be collected in ink on paper copies. Surveys will either be self-administered or administered by the Student CPEs. The Home Assessment will be conducted entirely by the Student CPEs. The four forms are listed below and provided in the Appendices.

1. Consent Form (will include name of Participant and indicate in which MHA development they reside. If they do not live in one of the four MHA developments, their residence will be denoted as "Other")
2. Keysheet with Participant Name, PATH ID#, Telephone number, and Address
3. First Survey (with PATH ID# and questions about asthma and trigger knowledge, behaviors, asthma severity – if applicable, home conditions, social network)
4. Second Survey (with PATH ID #)
5. Home Assessment Floor Plan and Checklist (with PATH ID#) -- only a subset of Participants are expected to agree to/receive this

b. Volunteer Identification

The First and Second Surveys and Home Assessments will be numbered by a unique identifier, on the first page of the form through use of pre-printed stickers. These stickers will contain the PATH

Participant Identification Number. Once a Participant has enrolled in the study by giving informed consent, this assigned Participant ID# will be used for identification purposes in all future data collection tools (i.e., the First and Second Surveys as well as the Home Assessment). The only document that contains both the personal Participant information and the Participant Identification number is the keysheet. PATH staff will update and maintain this confidential keysheet in hard copy form at the time of enrollment, and in electronic form (to be stored electronically in restricted folders at Abt Associates Inc. and LeMoyne-Owen College). Only study staff with IRB training will be permitted to collect information on the hard copy of the keysheet, to transcribe this information to the electronic version, or to view this sheet.

c. Confidentiality

The privacy of Participants will be maintained through the use of unique identifiers (Participant ID #), rather than names, to identify the Participants in the surveys and optional Home Assessment. All PATH data files will be delinked. The consent form will contain the Participant's name, but all surveys and Home Assessment forms will contain just the Participant ID #. Only one document, the keysheet, will link the Participant's name and personal information (phone number, address) to the Participant ID #. Interviewers will not discuss Participant responses with others. When data from the PATH project is discussed, it will be aggregated to a percentage level. If only a small number of Participants exhibit a certain behavior, their names and/or addresses will not be used to identify them.

After the study is completed, copes of subjects' consent forms will be kept on file for three years. At this point, the Principle Investigators will ensure that these documents are shredded and disposed of. The keysheet that links the Participant ID # to the Participant's name and contact information will also be maintained for three years after the completion of the study and then destroyed.

Upon conclusion of the study, Abt Associates will transfer to LeMoyne-Owen College the final raw dataset containing the responses to the First Survey, Second Survey, and Home Assessment. These data are delinked, i.e., they only contain the Participant ID #'s so as to protect subject confidentiality. Data will be transferred using Abt Associates secure HTTP web portal. (Note: Abt will transmit the data to LOC monthly using this protocol, not just at the end of the study.) Also, upon the study's conclusion, Abt will submit the final USAMRMC annual report to LOC. This report will contain aggregated results, not subject-level information or any identifying subject information.

d. Disposition of Data

A similar protocol will be followed for the consent forms, the First and Second Surveys, and the Home Assessment.

- First, the Student Community Peer Educators will collect information from the study Participants on a paper copy of the consent form, First and Second Survey, and the Home Assessment. (In some instances, the Participant may self-administer the survey.)
- Second, the Student CPE will give the completed forms to the Project Coordinator/Lead Researcher on the same day that the information is collected.
- Third, the Project Coordinator/Lead Researcher will store the PATH documents in a fireproof, locked container until delivery to another fireproof, locked container located in the locked PATH project office at LeMoyne-Owen College is possible, preferably the next day.

- Fourth, the Research Assistant at LeMoyne-Owen College will unlock the container, and scan the completed data collection tools into a .pdf file into the record database located on the PATH project computer. The computer will be password protected and stored in a locked cabinet in a locked office. The scanned data collection tools will follow the following file naming convention:

  PARTICIPANT ID_DOCUMENTTYPE_MONTH-DAY-YEAR (OF SURVEY).PDF.

  where

  DOCUMENTTYPE =

  CONSENT, First Survey, Second Survey, HOMEASSESSMENT
- Fifth, the scanned documents will be backed up onto a secure network drive at LOC. The secure network drive will be accessible only to PATH staff at LOC. It will be backed up nightly.
- Sixth, the Research Assistant, overseen by the Student Research Coordinator, will use a secure HTTP based data transfer portal to transfer the scanned project files to a secure portal (making use of software called MoveItDMZ, provided by Standard Networks of Madison, Wisconsin.) This service is specifically designed to transfer large files/data securely using technology that meets U.S. Government encryption standards (FIPS 140-2 cryptography). No software is needed to transfer the files – only a web browser. PATH staff located in Memphis will be given user accounts in order to use this service. No one can access these files without a user account. The Principal Investigators must approve all user accounts. There is no limit to the file size. This portal is not intended for long-term storage of files, but only for file transfer. All files will be automatically deleted from the portal 30 days after being posted.
- Seventh, immediately after the files are transferred to the secure HTTP portal, PATH staff at Abt will download the project files to a restricted folder on the company's server. Only PATH project staff at Abt will have access to the folder. The server is backed up nightly.
- Eighth, once scanned, the original paper data collection forms will be stored in a locked filing cabinet, sorted by document type and Participant ID# in the PATH program office at LeMoyne-Owen College.
- Ninth, the Student Researcher, overseen by the Student Research Coordinator, will enter the data for each Participant into the appropriate data collection form (First and Second Surveys, Home Assessment) using the CHECKBOX Online software (operated by Prezzatech). Abt Associates Inc. will have created the online surveys in order for users to fill in responses. PATH staff will be given user ID's and passwords to access this site. No one can access the data collection tools without a user account and password. Each user will be able to enter multiple surveys (corresponding to the multiple Participants who completed responses). Each data collection tool will be identified by the Participant's PATH ID#. No software is needed to enter the information into the forms, only a web browser.
- Tenth, Abt staff located in Cambridge or Bethesda will download comma-separated value (.csv) data files from the CHECKBOX Online storage once per week, or more often if necessary, to a restricted network drive at Abt that is backed up nightly. Only PATH staff will have access to the drive. Abt staff will then use the secure HTTP portal to transfer the .csv data files to LeMoyne-Owen College. (While LOC staff will enter in the raw survey data into the CHECKBOX Online program, Abt staff will be able to download data files in the useful .csv data file format, which can be used as the basis for data analysis.)

- Eleventh, the Student Researcher, overseen by the Student Research Coordinator, will download the CHECKBOX Online .csv data files from the secure HTTP portal to the restricted network drive at LeMoyne-Owen College.
- Twelfth, the scanned documents and the project spreadsheets will be stored on the secure Abt and LOC networks and kept for a period of 5 years.
- Thirteenth, Quality Control will be conducted by Abt Associates Inc. For example, randomly selected original Participant surveys (stored as .pdf files) will be compared to the electronically transcribed versions entered using CHECKBOX Online. (For approximately 5% of surveys.)
- Note: only one electronic file will link the personal Participant information, such as name, address, telephone number, with the Participant identification number. This file titled PATH_Participant_Keysheet_DATE.xls will be updated in the PATH project office at LeMoyne-Owen College and transmitted to Abt weekly using the secure HTTP portal. Only PATH staff who have received IRB training will be able to update hard copies of this sheet, transcribe data from this sheet electronically, transmit this sheet, or view this sheet.

e. Sharing Research Results

The PATH team will share the overall research results with the study Participants at the completion of the study. The debriefing will occur at each of the four MHA developments. Housing problems and solutions will be highlighted. Improvements made by the study Participants, and barriers to success, will be summarized. PATH staff will elicit feedback from study Participants. Participants from MHC will be notified about the debriefing and will be invited to attend the sessions.

18. Risks/Benefits Assessment

As with all human participant research, housing health hazards research—the type that will be conducted for the PATH study—poses a number of participant risks and benefits. However, the risks and benefits associated with research conducted in participant homes are unique compared to the risks and benefits associated with other types of human participant research by virtue of:

1. The setting in which the research is done; and
2. The research's predominant focus on families (adults and children) in economically disadvantaged communities.

These factors alone present a number of unique ethical considerations that other types of health research—particularly research conducted in clinical settings—do not necessarily present. Because the research being conducted for the PATH study is a housing health hazards study and is being conducted in Participant homes, researchers designing and implementing the study must:

- Recognize that, contrary to conditions in clinical settings, the researcher is not in a position of authority. Instead, he/she is a guest in the home in which research is being conducted and must abide by the rules of the household upon entering.

- Be cognizant of a different, more expansive set of boundaries regarding Participant privacy. In addition, to being mindful of protecting Participants' anonymity in the research and ensuring confidentiality, researchers must be mindful that they are entering Participants'

private domains where they have the opportunity to observe household conditions and private family interactions. Researchers must be "… sensitive to and respectful of the host's customs and values." (BOCYF, pg. 65) Moreover, researchers must be as vigilant in maintaining Participant privacy with regard to what is observed in the home as they are to maintaining information collected via the administration of Participant surveys or interviews.

- Understand that they differ from other household visitors by virtue of the fact that they "… have special expertise about housing health hazards and have unique opportunities while in the home to identify hazards." (BOYCF, pg. 66) As such, researchers must still be mindful of their roles as experts and meet their obligations to identify and, where possible, ameliorate household hazards.

In addition to being mindful of the ethical challenges that household visitation presents, researchers must consider the ethical issues associated with working with economically disadvantaged families. Specifically, researchers participating in all phases of the PATH Study must be aware of: Inherent power differentials that might exist between Participants and investigators. These power disparities may be the result of real or perceived differentials in socio-economic status (including level of education) between adult household residents and the investigators. Such disparities may also be the result of age differences between Participants who are younger than the researchers (i.e. an 18 year-old caregiver). In any case, researcher must be wary not to create, reinforce, or exploit such power differentials to influence Participants' participation in housing health hazards research.

a. PATH Study Risks

Risks associated with research that will be conducted as a part of the PATH Study are mostly related to the setting in which the research will be conducted and the populations being studied. These are generally specific to the home assessment portion of the study, which not all Participants will take part in. Potential risks associated with the proposed research include:

- **Invasion of privacy.** As noted above, researchers will have the opportunity to observe household practices and interactions that would otherwise be private. In the course of their visits, researchers may observe benign activities that are outside of the scope of their personal practices or norms. Such benign activities observed in private homes should not be disclosed as a part of the research process and should not be shared with others outside of the home under any circumstances. Additionally, researchers may observe illegal activities in the home or conditions/practices that violate the terms of tenancy and/or city codes and ordinances. In accordance with local, state, and federal laws, it may be incumbent upon researchers to report such activities and practices to the proper authorities, particularly where children in the household are endangered.

- **Psychological injury resulting from any breech of privacy**. Because researchers will be entering Participants' homes, it is possible that participating Participants may risk psychological injury due to judgments that may be rendered by researchers of families, their lifestyles, values, and household norms. Psychological injury may also result from discrimination and prejudice that may be at the root of such judgments.

- **Jeopardized resident tenancy.** In the course of the research being conducted for the PATH study, illegal practices and activities or conditions/practices that violate the terms of resident tenancy and/or city codes and ordinances may be reported the appropriate authorities. As such, it is possible that, where such violations occur and are reported, Participants' tenancy in Memphis Housing Authority apartments may be terminated.

- **Risk of continued exposure to and suffering from household health hazards.** Like other housing health hazards studies, the PATH study is not designed to eliminate household health hazards or measurably reduce them. While there is an educational component to the study, the study is not designed to directly address health hazards where they are present in Participant homes. As a result, study Participants may still be susceptible to asthma attacks or other medical complications resulting from household health hazards. This would not be caused by study participation, but may be more likely in a population likely to include many asthmatics.

Perceived Risks

In addition to the risks noted above, there is a "perceived" risk that must be acknowledged. Due to past exploitative practices in studies like the Tuskegee Experiment, it is common—particularly in studies that disproportionately select Participants of color or Participants from disadvantaged populations—for Participants to fear that they may be exploited in some way. Forms of perceived exploitation include the administering of lethal treatments over the course of the study or the purposeful failure to treat identified illnesses.

It should be noted that the PATH study is in no way designed to exploit Participant populations. Moreover, the PATH study is a largely observational study and does not include the administering of any sorts of medical or pharmacological treatments that may adversely impact Participants' health. We have worked closely together with staff from the Memphis Housing Authority and the Memphis Health Center in the planning stages to ensure that the PATH study will not exploit the Participants. We will continue to work with our community partners in study implementation to continue to monitor this.

Risks to Study Researchers

While the risks to study researchers are minimal, this group may be Participant to personal safety risks. Because the PATH study will be conducted in private homes and in neighborhoods that experience relatively high crime rates, researchers may find their personal safety threatened.

The PATH study staff are taking precautions to work with community members—including Memphis Housing Authority Resident Presidents and Memphis Health Center staff —to ensure that researchers conform to neighborhood and community norms as the research is conducted and to ensure their safety over the course of the study. Many of the researchers are African American and come from similar Memphis communities, thus are not likely to be perceived as outsiders.

b. PATH Study Benefits

The intent of most health research is not to simply collect data and study Participant populations. The greater intent is to utilize the study (its experts, study findings, etc.) to create a platform for creating a spectrum of health promoting benefits for the study populations and the public at large. Following we list what we anticipate will be the short- and long-term benefits that may derive from participating in the PATH study.

Short-term Benefits

Anticipated short-term benefits include:

- **Household and community education.** Study designers intend to provide student researchers, MHA resident presidents, and study Participants with a variety of educational materials that will: 1) Assist them in understanding connections between asthma prevalence and the state their community's overall health; 2) Educate each population on the basic epidemiology of asthma; 3) Teach each population to identify asthma triggers and develop asthma prevention strategies.

- **Obtaining disease prevention and management tools.** Study designers intend to provide Participants with several informational tools and household hardware (cleaning supplies, food containers, vacuum cleaners, pest traps, etc.) that will equip them to identify and address asthma triggers.

Long-term Benefits

Anticipated long-term benefits include:

- **Community Building.** The PATH study is intentionally aligned with the principles supporting participatory research. As such the research team will include students from LeMoyne-Owen College in Memphis as well as community members from local housing developments and one of the local community health centers. One of the goals of creating a community-reflective research team is to promote interaction regarding important health issues among community members. A participatory design facilitates informational exchange between community members, promotes ownership of study (in the case health) issues by the community, and encourages building social capital and shared capacity through study interactions.

- **Reduction in Asthma Triggers and Symptoms.** As noted above, the PATH study aims to equip Participants with informational tools that will enable them to identify asthma triggers. (The PATH study further intends to provide Participants who take part in the Home Assessment with household tools that will enable them to address some of these triggers. We are currently pursuing donations in order to provide these tools.) If the PATH study successfully teaches Participants to apply these tools, it is expected that measurable reductions in asthma triggers and symptoms will result over time.

- **Strengthening of Networks, Access to Healthcare and Community Empowerment.** Again, because the PATH study is a participatory research project, it is designed to focus many segments and sectors of the community on a common issue/threat—asthma. In addition to including community residents, this study is intended to facilitate collaboration between higher education (LeMoyne-Owen College), the local housing authority, and the

local community health center. The collaborative work done between these sectors and with community residents has the potential to improve overall community capacity, strengthen community-level networks, and improve access to healthcare and health resources.

Intent to Benefit

Not applicable. All volunteers will give their own consent to participate. (BOYCF, 2005)

19. Study Personnel

Please see **Table 12** below for the roles and responsibilities of key study personnel.

Table 12. Roles and Responsibilities of Key Study Personnel

Name, Affiliation	Roles and Responsibilities
Cheryl Golden, Ph.D. LeMoyne-Owen College	Co-PI Overall project management, administration, relationship with key institutions (Memphis Housing Authority, Memphis Health Center, Memphis Shelby-County Health Department), oversee reporting to DOD, contact with Project Coordinator/Lead Researcher, Project Quality Assurance
Sue Greco, Sc.D. Abt Associates Inc.	Co-PI Project management of Abt staff, Protocol development, Participant Curriculum, Data Management, Student CPE Training, Consent forms.
Rahn Dorsey Abt Associates Inc.	Senior Researcher Create and deliver Resident President Community Peer Educator Training
Meghan Lynch, Sc.D. Abt Associates Inc.	Senior Researcher Data collection instruments, Surveys, Home Assessment, Student CPE Training.
Penny Schafer, Ph.D. Abt Associates Inc.	Senior Technical Advisor Provide guidance on day-to-day project operations and review key study documents.
Ernestine Small, R.N., Ed.D. Memphis-Shelby County Health Department	Project Coordinator/Lead Researcher. To oversee Student Community Peer Educators, Student Research Coordinator, Student Researcher. To deliver Participant education session. Responsible for MHA/MHC recruiting Administration of consent forms, First and Second Surveys, and Home Assessments.

Name, Affiliation	Roles and Responsibilities
Deborah Klein Walker, Ed.D. Abt Associates Inc.	Project Quality Assurance Review Protocol and associated documents. Overview of study and QA/QC activities.

20. Roles and Responsibilities of Medical Monitor

We do not anticipate this project to be greater than minimal risk, thus do not expect to use a medical monitor.

21. Withdrawal from the Protocol

Participants are free to withdraw at any time. The right and freedom to withdraw is stated in the informed consent document, will be verbally explained during scheduled recruitment sessions, and before the educational sessions are initiated. Any Participant who does not complete the First and Second Survey or attend the educational session will be considered a Participant who has withdrawn from the study.

22. Modifications to the Protocol

After the protocol is approved by the Human Research Protection Office (HRPO), any minor modifications (amendments) to the protocol, consent form, advertisements, questionnaires, or other related study materials will be submitted to LOC and Abt IRBs for approval. The LOC IRB's approved amendments, with explanation of the need for changes, will be included in the continuing review report and submitted to HRPO for acceptance.

Major modifications to the research protocol and any modifications that could potentially increase the risk to volunteers will be submitted to the LOC IRB, the Abt IRB and the Army's HRPO for approval prior to implementation.

We will follow HRPO guidelines for major modification and submit:

- A description of proposed modifications or amendments to the protocol and an explanation of the need for these modifications
- Any revised protocol documents incorporating the modifications. If the IRB of record, LeMoyne-Owen College, does not not require revision of protocol documents, we will submit a copy of all documentation submitted to the local IRB for approval of the modifications.
- Documentation of IRB approval of the changes.
- Additional scientific review that may be necessary to support major design changes

23. Protocol Deviations

If any unforeseen threat to the rights and safety of the Participants occur, the incident will be reported to the PI at LeMoyne-Owen College, Dr. Cheryl Golden. Dr. Golden will report the incident immediately to the PI at Abt Associates Inc., Dr. Sue Greco, and to the Army's Human Research Protections Office. Any corrective actions taken to avoid future deviations will be included in the continuing review report. Documentation of any actions taken by the LOC IRB related to the deviation will be provided when available.

24. Reporting of Serious Adverse Events and Unanticipated Problems

Dr. Golden, the PI for LeMoyne-Owen College is listed as a local contact for the Participants on the consent form. In addition to her phone number, the phone numbers of the LeMoyne-Owen College and Abt Associates Inc. IRB contacts are provided. In the case of a Participant contacting Dr. Golden, the following procedure will be followed:

- Dr. Golden will immediately contact Dr. Greco, the PI of Abt Associates Inc. by telephone or e-mail.
- Then, Dr. Golden will officially report the event to the LeMoyne-Owen College Institutional Review Board and to the Army's Human Research Protections Office
- Dr. Greco will officially report the event to the Abt Associates Inc. Institutional Review Board.

Incorporating full text from USAMRMC document, "Guidelines for Investigators: Requirements for the U.S. Army Medical Research and Materiel Command (USAMRMC) Headquarters Review and Approval of Research Involving Human Volunteers, Human Anatomical Substances, and/or Human Data" (dated 29 January 2007) regarding HRPO reporting requirements for adverse events and unanticipated problems:

Unanticipated problems involving risk to volunteers or others, serious adverse events related to participation in the study and all volunteer deaths related to participation in the study should be promptly reported by phone (301-619-2165), by e-mail (hsrrb@amedd.army.mil), or by facsimile (301-619-7803) to the U.S. Army Medical Research and Materiel Command's Office of Research Protections, Human Research Protections Office. A complete written report should follow the initial notification. In addition to the methods above, the complete report can be sent to the U.S. Army Medical Research and Materiel Command, ATTN: MCMR-ZB-P, 504 Scott Street, Fort Detrick, Maryland 21702-5012.

25. Continuing Review and Final Report

Annual continuing review will be obtained from:

- LeMoyne-Owen College Institutional Review Board
- Abt Associates Inc. Institutional Review Board

The IRB approval from the IRB of record, LeMoyne-Owen College, will be submitted to the HRPO (Human Research Protection Office) by LeMoyne-Owen College.

26. USAMRMC Volunteer Registry Database

We do not anticipate this extramural research project to be greater than minimal risk, thus we do not expect the need to comply with the Volunteer Registry Database requirement.

C. Biosketches of PIs and Key Study Personnel

→ Please find the biosketches for the following PATH staff in **Section C**:

- Dr. Golden,
- Dr. Greco
- Mr. Dorsey
- Dr. Lynch
- Dr. Schafer
- Dr. Small
- Dr. Walker

D. Advertisements Used to Recruit Volunteers

→ Please find the following documents attached in Section D:

- Recruitment Brochure
- Memphis Housing Authority Meeting Announcement
- PATH Study Activity Calendar

E. Informed Consent Documents

→ Please find the following documents attached in **Section E**:

- Memphis Health Center Consent Form for surveys + education
- Memphis Housing Authority Consent Form for surveys + education
- Memphis Housing Authority Consent Form Home Assessment>

F. Participant Education Session and Handout

→ Please find the following documents in **Section F**:

- Participant Education Session and
- Handout Brochure
- Asthma Action Plan

G. Surveys and Data Collection Instruments

→ Please find the following documents in **Section G**:

- First Survey
- Second Survey
- All Home Assessment documents (Instructions, Participant Instructions, Participant Handout)

H. References

Akinbami, L. J. (2006) "The State of Childhood Asthma, United States, 1980–2005." The Advance Data from Vital and Health Statistics No. 381 Revised 12/29/06. Office of Analysis and Epidemiology.

Bazargan, M., J. Calderon, et al. (2005). "A profile of chronic mental and physical conditions among African-American and Latino children in urban public housing." Autumn **15**(4 Suppl 5): S5-3-9.

Berg J., e. a. (2008). "Rodent allergen in Los Angeles inner city homes of children with asthma." Journal of Urban Health **85**(1): 52-61.

BOCYF (2005). Ethical Considerations for Research on Housing-Related Health Hazards Involving Children. Washington, D.C., The National Academies Press.

Chew, G., M. Perzanowski, et al. (2003). "Distribution and Determinants of Mouse Allergen Exposure in Low Income New York City Apartments." Environmental Health Perspectives **111**(10): 1348-1351.

Children and Asthma in America. (2004) Regional Survey Data: Tennessee. Schulman, Ronca and Bucuvalas, Inc. (SRBI).

Coyle, S. L., R. H. Needle, et al. (1998). "Outreach-Based HIV Prevention for Injecting Drug Users: A Review of Published Outcome Data." Public Health Reports **113**(S1): 19-30.

Gruchalla, R. S., J. Pongracic, et al. (2005). "Inner City Asthma Study: Relationships among sensitivity, allergen exposure, and asthma morbidity." Journal of Allergy and Clinical Immunology **115**(3): 478-85.

Harvey-Berino, J., S. Pintauro, et al. (2002). "Does using the internet facilitate the maintenance of weight loss? ." International Journal of Obesity **26**: 1254-1260.

Hegel, M. and R. Ferguson (2000). "Differential reinforcement of other behavior (DRO) to reduce aggressive behavior following traumatic brain injury. ." Behavior Modification **24**: 94-101.

Hughes, E., M. McCracken, et al. (2006). "Surveillance for Certain Health Behaviors Among States and Selected Local Areas --- Behavioral Risk Factor Surveillance System, United States, 2004." MMWR Surveillance Summaries, **55**(SS07): 1-124.

Krieger, J., T. K. Takaro, et al. (2002). "The Seattle–King County Healthy Homes Project: Implementation of a Comprehensive Approach to Improving Indoor Environmental Quality

for Low-Income Children with Asthma." Environmental Health Perspectives **110**(S2): 311–322.

McConnell, R., J. Milam, et al. (2005). "Educational intervention to control cockroach allergen exposure in the homes of hispanic children in Los Angeles: results of the La Casa study." Clinical and Experimental Allergy **35**: 426–433.

McNeil, S., T. Watson, et al. (2002). "The effects of training parents in functional behavior assessment on problem identification, problem analysis, and intervention design." Behavior Modification **26**: 499-515.

NAS (2000). "Clearing the Air: Asthma and Indoor Air Exposures, Executive Summary."

National Health Interview Survey (NHIS). (2005). National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC).)

NCHH (2007). Integrated Pest Management for Healthier Homes.

Persky, V., L. Coover, et al. (1999). "Chicago Community-Based Asthma Intervention Trial - Feasibility of delivering peer education in an inner-city population." Chest **116**(4): 216S-223S.

Rauh, V., G. Chew, et al. (2002). "Deteriorating Housing Contributes to High Cockroach Allergen Levels in Inner-City Housing." Environmental Health Perspectives **110**(S2): 323-327.

Selgrade, M. K., R. F. Lemanske Jr., et al. (2006). "Induction of Asthma and the Environment: What We Know and Need to Know." Environmental Health Perspectives **114**(4): 615-619.

Tarnowski, K., M. Gavaghan, et al. (1989). "Acceptability of interventions for pediatric pain management." Journal of Pediatric Psychology **14**: 463-472.

Wang, C., M. Abou El-Nour, et al. (2008). "Survey of Pest Infestation, Asthma, and Allergy in Low Income Housing." Journal of Community Health **33**: 31-39.

I. List of Abbreviations

Abbreviation	Full Name
Abt	Abt Associates Inc.
CBPR	Community Based Participatory Research
CHC	Community Health Center
CPEs	Community Peer Educators
DOD	Department of Defense
ETS	Environmental Tobacco Smoke
FHA	U. S. Federal Housing Authority
HCAHO	Joint Commission on Accreditation of Healthcare Organizations
HRPO	Human Research Protection Office
IPM	Integrated Pest Management
IRB	Institutional Review Board
LOC	LeMoyne-Owen College
LOCPATH	Personnel from LOC as well as key MHA and MHC representatives
MHA	Memphis Housing Authority
MHC	Memphis Health Center
NO_2	Nitrogen Dioxide
OR	Odds Ratio
PATH	Partnership for Asthma Trigger-Free Homes
PIs	Principal Investigators
QA/QC	Quality Assurance/Quality Control
QOL	Quality of Life
USAMRMC	United States Army Medical Research and Materiel Command
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children

BIOGRAPHICAL SKETCH – Cheryl Golden

Provide the following information for the key personnel listed on the budget page.

NAME	POSITION TITLE
CHERYL GOLDEN	**CHAIRPERSON, DIVISION OF SOCIAL AND BEHAVIORAL SCIENCES**

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include post-doctoral training).

INSTITUTION AND LOCATION	DEGREE (IF APPLICABLE)	YEAR (S)	FIELD OF STUDY
University of Georgia, Athens, Georgia	Ph.D.	1986	Clinical Psychology
University of Georgia, Athens, Georgia	M.S.	1983	General Psychology
Rhodes College, Memphis, Tennessee	B.A.	1980	Psychology/Education

RESEARCH AND PROFESSIONAL EXPERIENCE:
(selected listings)

2004 – Present **Professor of Psychology, LeMoyne-Owen College.**

2005 – Present **Chairperson, Division of Social and Behavioral Sciences, LeMoyne-Owen College.**

1997-Present **Associate Professor of Psychology, LeMoyne-Owen College.** Directs the psychology minor program of study and teaches upper-level sociology (e.g., Social Statistics) courses. Other assignments include: academic advisement, membership on a number of College committees, and faculty advisor to students on academic probation.

1993-2005 **Director of Academic Support, LeMoyne-Owen College.** Supervised the administration of the Testing Center, Genesis Academy, Freshman Seminar Program, Academic Intervention Management, and Retention Services; Administered the budgets for the entire area; wrote grant proposals or institutional funding; evaluated program personnel; served on the Academic Council; and, performed other duties as assigned by the Dean of the Faculty.

1988-1996 **Assistant Professor of Psychology, LeMoyne-Owen College.** Directed the psychology minor program of study and taught upper-level sociology (e.g., Social Statistics) courses.

1991 - 1993 **Executive Director, The Center for Faculty and Student Faculty Development.** Supervised the administration of the Center for Faculty and student Instructional Development which includes the following components: The Learning Center, The Center for Faculty Instructional Development, The Academic Advisement Center, The Testing Center, and The Media Center; administered the budgets for the entire area; Wrote grant proposals for the institutional funding; evaluated Center personnel; Served on the Academic Council; and, performed other duties as assigned by the Vice President for Academic Affairs/ Dean of Facility.

1990 **Interim Director of African and African American Studies, LeMoyne-Owen College.** Coordinated the interdisciplinary major in African and African American Studies; coordinated institutional workshops, seminars, and conferences; was the community liaison for research and consultation; administered the budget for the area; and, performed other duties as assigned by the Vice President for Academic Affairs/Dean of the Faculty.

1989 -1991 **Interim Chairperson, Division of Social and Behavioral Sciences, LeMoyne-Owen College**. Administered the activities of the Division as stipulated in the Operational Plan of the Vice President for limited to, the following: to supervise faculty in the disciplines of sociology, history, political science, social work, social science, geography, and psychology; to administrate the budgets for the Division; conducted

BIOGRAPHICAL SKETCH – Cheryl Golden

program reviews for the Division and the social work area; hired faculty and staff as needed; served on the Academic Council; evaluated all faculty annually; determined the Divisional course offerings for each academic term; supervised the evaluation of academic transcripts; and, performed other duties as assigned by the Vice President for Academic Affairs/Dean of the Faculty.

1988 - 1996 **Assistant Professor of Psychology, LeMoyne-Owen College.** Taught introductory psychology courses and upper-level sociology (i.e., Social Psychology Social Statistics) and education (Educational Psychology) courses. A course was also developed for the CORE Curriculum entitled: Psychological Uses and Abuses of Power in Cultures. Other assignments included: academic advisement, membership on a number of College committees, and faculty advisor for an honor society, Alpha Kappa Mu, Kappa Beta chapter.

1986 -1988 **Staff Psychologist, Alcohol and Drug Rehabilitation Treatment Unit, VA Medical Center, Tuskegee, Alabama.** Provided individual and group psychotherapy for selected patients; provided psychological assessments; and supervised graduate students and interns who rotate on the Unit.

1986 - 1988 **Program Director, Geriatric Psychosocial Rehabilitation Unit, VA Medical Center, Tuskegee, Alabama.** Presided at multidisciplinary treatment team meetings; provided psychological consultation in medical rounds; provided individual, couples, family, and group psychotherapies, provided psychodiagnostic screening assessments; supervised interns and graduate students; conducted seminars; structured and implemented research and program evaluation/quality assurance activities.

PUBLICATIONS:

Boczkowski, J., Adams, H., & Golden, C. (1986). Behavioral observations of elderly residents in three geriatric facilities. *Behavioral Residential Treatment, 21,* 34-53.

Golden, C., Frazier, M., & Calhoun, J. (1984). The sequence of treatment and additional information in person perception change of a case of infidelity. *Family Therapy, 11,* 229-240.

Golden, C., & McMorris, C. (1999). A student-directed model for the teaching of psychopathology. In Dibiasio, D., Groccia, J., & Miller, J. (1999) (Eds.) *Student Assisted Teaching and Learning: Strategies, Models and Outcomes.* Baltimore, MD: Anker Publications.

Skiffington, S., Golden, C., & Calhoun, J. (1985). Perceptions of an alcoholic: Empathy and attribution. *Journal of Alcohol and Drug Education, 30,* 9-11.

PRESENTATIONS:

1992 Presentation: Tools for Parent Education. Black Family Ministries Project National Baptist Convention Nashville, Tennessee.

1992 Coordinator Educational Technology for Colleges and Universities. Regional Seminar LeMoyne-Owen College Memphis, Tennessee

1996 Presentation: A Study in Eschatology. The Quadrennial Session of the National Youth and Young Adult Conference of the Christian Methodist Episcopal Church Birmingham, Alabama

1998 Presentation: Identifying and Using Your Spiritual Gifts. The Twelfth Annual Christian Methodist Episcopal Convocation Atlanta, Georgia.

1998 Presentation: The Spiritual Needs of Caregivers and Care-receivers. A Memphis Inter-Faith Association (MIFA) Regional Workshop Memphis, Tennessee.

BIOGRAPHICAL SKETCH – Cheryl Golden

HONORS AND PROFESSIONAL AFFILIATIONS:

1985	Nominee for the William K. Boardman Award for Outstanding Contributions in Clinical Psychology. The University of Georgia Athens, Georgia.
1988	Special Performance Award. Psychology Service VA Medical Center Tuskegee, Alabama.
1988	Recipient of the Minority Fellowship. Candler School of Theology Emory University Atlanta, Georgia.
1998	Outstanding Service Award for Leadership In the Development of the Freshman Seminar Program. LeMoyne-Owen College Memphis, Tennessee.
1990	Special Service Award for Outstanding Contributions to the Division of Student Affairs. LeMoyne-Owen College Memphis, Tennessee.
1991	Special Service Award for Outstanding Leadership. Academic Excellence Week LeMoyne-Owen College.
1992	Wye Fellow. The Aspen Institute Queenstown, Maryland.

COMMUNITY SERVICE:

1994 - 1996	Student Member Board of Trustees Memphis Theological Seminary
1992 - 1996	Chairperson, Board of Directors Samaritan Ministries, Inc. Memphis, Tennessee
1989 - 1992	Board of Directors Samaritan Ministries, Inc. Memphis, Tennessee

BIOGRAPHICAL SKETCH—Susan Greco

Provide the following information for the key personnel listed on the budget page.

NAME	POSITION TITLE
SUSAN GRECO	**SENIOR ANALYST**

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include post-doctoral training).

INSTITUTION AND LOCATION	DEGREE (IF APPLICABLE)	YEAR (S)	FIELD OF STUDY
University of Windsor, Ontario, Canada	B.A.Sc.	1996	Environmental Engineering
University of British Columbia, Vancouver	M.A.Sc.	1998	Environmental Engineering
Harvard University, Boston, MA	S.D.	2006	Environmental Health

RESEARCH AND PROFESSIONAL EXPERIENCE:

Experience with Abt Associates Inc. (selected listings)

2006-present **Senior Analyst. Co-Benefits Risk Assessment Model (COBRA).** The COBRA model allows users to estimate the health benefits associated with a reduction in air pollution emissions in any county (or combination of counties) across the U.S. Validated the COBRA air quality model in terms of performance with other commonly used air pollution dispersion models, like CALPUFF and CMAQ. Compared concentrations, population exposure, and intake fractions for similar emissions reductions across the models.

2006-present **Senior Analyst. Environmental Benefits Mapping and Analysis Model (BenMAP).** BenMAP combines air pollution monitoring and modeling data, as well as population, epidemiological and economic data, to estimate the health-related benefits of reducing ambient pollution levels. Investigated global climate change air pollution health risks (such as increased asthma resulting from projected higher pollen levels, and health impacts resulting from higher ozone exposures) for potential inclusion into the BenMAP model.

2006-present **Senior Analyst. Quantifying Non-Cancer Human Health Risks in Benefits Assessments: A Case Study Approach.** Summarized strengths and weaknesses of current and proposed non-cancer risk assessment approaches for the EPA's National Center for Environmental Economics (NCEE). Compared benchmark dose software, categorical regression, and straw man non-cancer model capabilities to predict risk resulting from environmental exposures to two chemicals. Analyzed model outputs as applied to benefits assessment.

2006-present **Technical Advisor. NOAA Community Resilience Indicators.** Provided technical guidance on developing community resilience indicators. Examined other such community programs. Assisted with conference planning and logistics.

2006-present **Senior Analyst. Economic Benefits of Pesticide Container Recycling Rule.** This project examined the costs and benefits of recycling agricultural pesticide containers. Outlined a risk assessment methodology for estimating the human health benefits from increased pesticide container recycling. The rule resulted in less backyard burning of containers which decreased exposures to 2,3,7,8-tetrachlorodibenzodioxin.

2006-present **Senior Analyst. Uncertainty/Sensitivity Analysis for the PM-Premature Mortality Relationship**. In this project Abt Associates developed methods to analyze and compare several sources of uncertainty in the relationship between particulate matter air pollution and premature mortality, a key component of air pollution benefits analyses. Searched and summarized the differential $PM_{2.5}$ toxicity literature in terms of fine particle constituents: sulfates, nitrates, organic and elemental carbon (EC/OC), and crustal.

BIOGRAPHICAL SKETCH—Susan Greco

2007-present **Senior Analyst. Nitrogen in the Environment.** Assisted NCEE EPA client with the preparation of a nitrogen backgrounder presentation tool aimed at senior policy-makers to summarize the state of science for nitrogen in the environment in a scientifically rigorous, but accessible way. Worked with several EPA scientists across different offices to integrate information. Played a key role in organizing the presentation.

Other Professional Experience (selected listings)

1993 **Environmental Technologist, General Chemical Ltd.** Collected and analyzed industrial wastewater according to MISA guidelines and submitted daily reports. Periodically monitored the calcium chloride factory's air and dust emissions.

1994 – 1995 **Environmental Engineering Co-op Student, Ford Motor Company Windsor Casting Plant.** Monitored and supervised the maintenance of air pollution control devices, hazardous waste removal, ventilation systems, and industrial wastewater treatment system. Assisted with regulatory issues including Certificate of Approval (Air) applications, Municipal/Industrial Strategy for Abatement (MISA) deliberations, and the Detroit River Remedial Action Plan development. Acted as recycling coordinator and implemented the start of composting at the site, as well as a switch from Styrofoam cups to re-usable mugs.

1996 **Environmental Project Investigator. Stantec Engineering Consultants.** Characterized and analyzed wastewater from a food-processing plant to evaluate the effects of different treatments. Performed computer-modelling of a municipal drinking water distribution system to evaluate the location and sizing of proposed new water mains.

1996 – 1998 **Graduate Research Assistant. University of British Columbia, Department of Civil Engineering.** Developed a model (fit to field data) to explain the vertical mixing between a polluted harbor and the relatively clean Lake Ontario. The mixing of waters of different densities due to a temperature gradient is termed two-layer exchange flow.

1999 **Research Assistant. University of Windsor/Great Lake Institute for Environmental Research.** Helped to plan a 3-year study of the health of the Detroit River. Obtained and analyzed chemical, hydraulic, bathymetric, and geographical information for the waterway to develop project aims and hypotheses.

2000 – 2001 **Research Assistant. Windsor Regional Cancer Centre.** Administered interviews to cases and controls in an epidemiological study of breast cancer and pesticide exposures in Southwestern Ontario. Performed data analysis and management for use in successful grant application.

2001 – 2006 **Research Assistant. Harvard University.** Studied particulate matter mortality concentration-response rates for developed and developing nations and presented work at international conferences. Evaluated health effects resulting from primary and secondary particulate matter emitted from power plants in the DC area, focusing on susceptible populations, such as diabetics and persons of low socioeconomic status. Developed intake fractions (emissions-to-exposure relationships) for mobile sources across the U.S. and within the Boston area. Examined the benefits of diesel bus retrofits for 25 bus routes in the Boston Metro area. Teaching assistant for environmental health, environmental fate and transport, and air pollution classes (at the undergraduate as well as graduate level).

PAPERS AND PUBLICATIONS:

John Spengler, Alan Eschenroeder, Jane Clougherty, Sue Greco, Glen Rice, Bonnie Rubin, and Ying Zhou. Review Comments on the Powder River Basin Oil & Gas Development Project Environmental Impact Statement (EIS), April 2002. http://www.powderriverbasin.org/cbm/expert_spengler.shtml

Levy JI, Greco SL, Spengler JD. The Importance of Population Susceptibility for Air Pollution Risk Assessment: A Case Study of Power Plants near Washington, DC. Environ Health Perspect 110: 1253-1260 (2002).

Tim Woolf, Geoff Keith, David White, Michael Drunsic, Montserrat Ramiro, and Jeannie Ramey of Synapse Energy Economics With: Jonathan Levy, Patrick Kinney, Susan Greco, Kim Knowlton; Brian Ketcham of Konheim & Ketcham; Charles Komanoff of Komanoff Energy Associates; and Daniel Gutman. Air Quality in Queens County, NY. http://www.synapse-energy.com/Downloads/Synapse-report-queens-air-quality-exec-summary-05-29-2003.pdf

BIOGRAPHICAL SKETCH—Susan Greco

Lawrence, G, Pieters, R, Zaremba, L, Tedford, T, Gu, L, Greco, S, Hamblin, H. Summer Exchange between Hamilton Harbour and Lake Ontario. *Deep-Sea Research* II 51(2004) 475-487.

Greco, SL, Wilson, AM, Spengler, JD, Levy, JI. Spatial Patterns of Mobile Source Emissions-to-Exposure Relationships Across the United States. (Accepted for publication in *Atmospheric Environment,* December 2005).

Greco, SL, Melly, SJ, Levy, JI. Maximizing benefits resulting from Urban Bus Fleet Retrofits. (2006, manuscript in preparation)

Greco, SL, Wilson, AM, Hanna, SR, Levy, JI. Factors Influencing PM2.5 Emission-to-Exposure Relationships in Urban Areas. (2006, submitted for publication).

Jonathan I. Levy and Susan L. Greco. Chapter 4 - Estimating Health Effects of Air Pollution in China: An Introduction to Intake Fraction and the Epidemiology. Clearing the Air: Assessing the Health and Economic Damages of Air Pollution in China. Editors CP Nielsen and M. Ho. MIT Press (2006, in press)

PRESENTATIONS:

Greco, SL and Jantunen, MJ. Intake Fractions: Past, Present and Future. Moderator of Symposium at the International Society for Exposure Analysis/Environmental Epidemiology Conference, Paris, September 2-6, 2006.

Greco, SL, Melly, SJ, Levy, JI. Maximizing benefits resulting from Urban Bus Fleet Retrofits. Poster at Symposium at the International Society for Exposure Analysis/Environmental Epidemiology Conference, Paris, September 2-6, 2006.

Greco, SL, Wilson, AM, Levy, JI. Factors Influencing PM2.5 Emission-to-Exposure Relationships in Urban Areas. Poster at Society for Risk Analysis, Annual Conference, Orlando, FL, December 4-7, 2005.

Greco, SL, Wilson, AM, Levy, JI. Mobile Source Intake Fractions in Urban Areas. Oral presentation at the International Society for Exposure Analysis Annual Conference. October 30-November 3, 2005, Tucson, AZ.

Greco, SL, Levy JI. Primary Particulate Matter Intake Fractions for Mobile Sources in the United States. Poster at the Network for Environmental Risk Assessment and Management (NERAM) Colloquium IV. January 31-February 1, 2005, Cuernavaca, Mexico.

BIOGRAPHICAL SKETCH – Turahn Charles Dorsey

Provide the following information for the key personnel listed on the budget page.

NAME	POSITION TITLE
TURAHN CHARLES DORSEY	**ASSOCIATE**

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include post-doctoral training).

INSTITUTION AND LOCATION	DEGREE (IF APPLICABLE)	YEAR (S)	FIELD OF STUDY
University of Michigan, Ann Arbor, MI	B.A.	1994	Economics

RESEARCH AND PROFESSIONAL EXPERIENCE:
(selected listings)

2000- 2003 **Deputy Project Director. Evaluation of the Community Voices Initiative.** Abt Associates has been contracted by the W.K. Kellogg Foundation to conduct an evaluation of its Community Voices initiative. Community Voices is a multi-year effort designed to improve access to quality health services for the uninsured and underserved. Built at the community level, the project is giving the underserved -- the working poor, individuals or families who receive public assistance and those who lack any or adequate health insurance -- a voice to help make health access and quality part of the national debate. Launched in 1998, Community Voices supports practical solutions to increasingly severe and entrenched health care access problems. Thirteen communities representing racially and ethnically diverse rural and urban populations form the building blocks of Community Voices. These communities, or learning laboratories, are working to identify best practices in meeting the needs of those who receive inadequate or no health services. Abt staff intend to use evaluative methods characteristic of program and Theory of Change evaluation to inform its largely qualitative process and formative assessments of Community Voices. (Client: W.K. Kellogg Foundation)

2002-Present **Associate. Examining the Services and Best Practices of Intermediary Organizations and the Faith- and Community-Based Organizations They Serve.** With its partner organization, Branch Associates—a small disadvantaged business located in Philadelphia—Abt Associates was recently awarded this contract to study the services and best practices of intermediary organizations and the faith- and community-based organizations they serve. The social service delivery covered by these organizations includes: hunger, transition from welfare to work, homelessness, rehabilitation, and at-risk youth. The study contains various tasks, but centers around case studies of ten intermediary organizations. These case studies will be used to cull the best practices of intermediary organizations. Additional project tasks include the providing recommendations on evaluating the work of intermediary organizations, benchmarking the progress of faith- and community-based organizations, and developing operational guides for intermediary organizations. (Client: U.S. Department of Health and Human Services Office of Faith-Based Initiatives.) Responsible for on-site data collection and developing technical assistance manuals for intermediaries.

2003-2005 **Associate. Evaluation of the March of Dimes-HRSA Genetics Education Needs Evaluation (GENE) Project.** Abt Associates is providing technical assistance and is conducting a participatory evaluation of a cooperative agreement between March of Dimes and HRSA to increase genetic literacy of consumers in underserved communities. (Client: Genetic Services Branch, Maternal and Child Health Bureau, Health Resources and Services Administration and the National March of Dimes Foundation). Conducted site visits and on-site interviews with community stakeholders. Developed community-level case studies. Co-facilitated multi-stakeholder meetings.

2005-Present P**rincipal Investigator. The Mid-Point Evaluation of the Venture Communities Program.** Supporting the Northwest Area Foundation and their 13 community partners, Abt Associates is conducting a mid-course evaluation of the Venture Communities program, which seeks to develop community-led solutions to reducing poverty in select urban, rural and reservation communities across 8 northwestern states. Abt's evaluation focuses on assessing: 1) The degrees to which the Ventures model is coherent and consistently developed across partner communities; 2) The efficacy of the programs learning systems; 3) Early outcomes associated with local poverty reduction strategies. Abt staff will conduct on-site data collection in each community as well as conduct interviews with foundation support teams to produce individual case

histories and a series of cross-community analyses. Primary duties include staff management, evaluation and data collection design, on-site data collection and data analysis.

2006 **Principal Investigator. National Rural Funders Collaborative Strategic Vision and Funder Alignment.** As a first step to launching their new strategic vision, the National Rural Funders Collaborative (NRFC), Abt Associates Inc. is conducting a review of current funder-members of NRFC's Steering Committee capacity to support the Collaborative's new strategic plan. The goal of the Collaborative is to transform rural communities through increased philanthropic investment and the development of alternative economies. An examination of funder readiness included the creation of a diagram/graphic depicting the strategic plan, funder interviews, a funder inventory, and a group interview of funders who attended NRFC's steering committee meeting. Primary duties included: budget management, presentation development, presenting at NRFC's meeting, interviewing (group and phone), data analysis, and report writing.

2006-Present **Project Quality Advisor. South End Community Health Center and WIN-WIN Program Rapid Assessment and Technical Assistance Project.** For the South End Community Health Center in Boston, MA, Abt used the National Initiative for Children's Healthcare Quality (NICHQ) framework, adapted from Wagner's Chronic Care Model, to conduct a rapid assessment of the quality of the Center's obesity prevention efforts in six areas: service delivery design, decision support, patient self-management, clinical information systems, use of community resources, and the healthcare system. The rapid assessment involved in-person interviews with key informants, observation of Center activities, review of program data, and review of Center policies and procedures. The project included an environmental scan of evidence-based childhood obesity prevention practices. Abt is currently providing strategic planning technical assistance to help the Center use the rapid assessment results to improve its obesity prevention program. Responsibilities included: Assisting the project team to develop its analytic approach, inquiry protocols, and analytic products. Served as quality reviewer for all design, implementation, and analytic products.

2007-Present **Task Leader. Communities Empowering Youth (CEY)- Performance Measurement and Evaluation Design Study.** The Communities Empowering Youth (CEY) program is designed to support organizational capacity building to better meet the needs of disadvantaged youth. This program is funded through the Compassion Capital Fund (CCF) program, a key component of the President's Faith-Based and Community Initiative. The CCF program created in 2002, assists faith-based and community organizations to increase their effectiveness, enhance their ability to provide social services, expand their organizations, diversify their funding sources, and create collaborations to better serve those most in need. Abt Associates and their subcontractor Branch Associates Inc., will assist AC/HHS in defining appropriate performance measures and targets for the CEY program, conducting case studies, and developing evaluation design recommendations. (Client: the Administration for Children and Families of the U.S. Department of Health and Human Services). Responsibilities include: Development of site visit inquiry, conducting site visits with other Abt staff, producing site-level and cross site analyses.

PUBLICATIONS:

"Determinants of Enrollment Among Applicants to the PACE Program" (with C.V. Irvin), January 1996.

"Medicare Cataract Surgery Alternative Payment Demonstration" Interim Report (with L. Reardon and M. Wrobel), April 1996.

"Evaluation of the Program of All-Inclusive Care for the Elderly (PACE) Demonstration, Annual Site Visit Report: Calendar Year 1994," (with Y. Zimmerman, R. Maher, D. Pemberton, R. Coulam), July 1996.

"Evaluation of the Program of All-Inclusive Care for the Elderly (PACE) Demonstration: The Response of Participating State Governments to the PACE Initiative," (with R. Coulam), May 1997.

"Evaluation of the Medicare Nursing Home Casemix and Quality Demonstration: Facility Adaptation Report" (with T. Moore, A. Muma, R. Virkutis, Y. Abel, M. Lantin, L. Cooper), November 1998

BIOGRAPHICAL SKETCH – Deborah Walker

Provide the following information for the key personnel listed on the budget page.

NAME	POSITION TITLE
DEBORAH KLEIN WALKER	TECHNICAL ADVISOR

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include post-doctoral training).

INSTITUTION AND LOCATION	DEGREE (IF APPLICABLE)	YEAR (S)	FIELD OF STUDY
Mount Holyoke College, South Hadley, Massachusetts	B.A.	1965	Pyschology
Harvard Graduate School of Education, Cambridge, Massachusetts	Ed.M., Ed.D.	1975 1978	Human Development Human Development

RESEARCH AND PROFESSIONAL EXPERIENCE:

Experience with Abt Associates Inc.

2004-present **Principal Associate**.

Project Director, Literature Review for Prevention of Medicaid Expenses, Massachusetts Medicaid Policy Institute, Boston, MA (March 2006 to June 2006)

Principal Investigator, Evaluation of Medicaid Real Choices Systems Change Grants, Center for Medicaid and Medicare, Baltimore, MD (August, 2005 to present).

Project Director, Massachusetts HIV Behavioral Surveillance System, Massachusetts Department of Public Health, Boston, MA (June 2005 to December 2005)

Project Director, Planning, Implementation and Evaluation for Nemours Health and Prevention Services, Newark, DL (May 2005 to June 2006).

Project Director, Feasibility Study for an ALS Registry and a Lupus Registry in Massachusetts, Massachusetts Department of Public Health, Boston, MA (April 2005 to June 2005).

Project Director, Planning, Implementation and Evaluation of the Health Initiatives for the Children's Trust of Miami-Dade County, Miami, FL (March 2005 to June 2006).

Project Director, National Evaluation of Healthy Start Programs for the Maternal and Child Health Bureau, Department of Health and Human Services, Washington, DC. (January 2005 to present).

Project Director, Technical Assistance for the Maine Health Information Network Technology (MHINT), Maine Health Information Center, Manchester, ME (September 2004 to October 2005)

Project Director, Impact of the HIPAA Privacy Rule on Health Services Research Study and Guidance Development, Agency for Healthcare Research and Quality, Department of Health and Human Services, Rockville, MD (May 2004 to November 2005).

BIOGRAPHICAL SKETCH – Deborah Walker

Other Professional Experience (selected listings)

1978-1987 **Co-Director. Southwest Regional Laboratory, Los Alamitos, CA.** Co-Director of technical assistance team to design and monitor impact evaluations of community-based adolescent pregnancy and parenting programs in the Too-Early-Childbearing Program Network funded by the Charles Stewart Mott 1978-1987

1988-1999 **Assistant Commissioner. Bureau of Family and Community Health (formerly Bureau of Parent, Child and Adolescent Health) (1988-1999), Associate Commissioner (1999 to present).** Massachusetts Department of Public Health. Responsible for maternal and child health programs (Title V), services for children with special health care needs (Title V and Part H of IDEA), the Women, Infants and Children Special Supplemental Food Program (WIC), chronic disease prevention (Prevention Block Grant), Massachusetts Tobacco Control Program, primary care, injury prevention, women's health, elder health, minority health and community health services. Administers insurance programs for pregnant women (Healthy Start) and for children and youth (Children's Medical Security Plan). Establishes first offices for violence prevention, elder health, men's health, and disability and health within a state health department. Responsible for over 350, over 250 million dollars and about 30 federal grants and cooperative agreements. Principal investigator for cooperative agreements and grants pertaining to community systems development, abstinence education, disability prevention, hemophilia reporting, alcohol screening, cancer, asthma, diabetes, needs assessment and data integration.

2000-2004 **Associate Commissioner for Programs and Prevention. Massachusetts Department Public Health**. Responsible for the integration of all programs and prevention efforts in public health. Leader in department-wide initiatives related to quality improvement, IT system development, public health informatics, data standards, health promotion, media and public education campaigns and materials, policy analysis, integration of public health with public and private purchasers, statewide capacity and development of plans for priority areas (e.g., cancer, asthma, genetics, tobacco, adolescent health, minority health, elder health, perinatal health, women's health). Provides supervision to health services cluster (family and community health, substance abuse and HIV/AIDS bureaus), Massachusetts Tobacco Control Program, minority health, healthy communities, privacy office and health statistics and data initiatives. Principal investigator for cooperative agreements and grants pertaining to substance abuse, prevention, cancer, asthma, diabetes and data integration. Lead public private partnerships with provider groups, HMOs, and community-based programs to improve quality of care and health outcomes for clients. Lead emergency planning and preparedness efforts for mental health and substance abuse within public health and community systems and coordinated planning and implementation of training activities for emergency planning and public health across department programs. Interim Director, Bureau of Substance Abuse Services, November 2000 – August 2003. Lead development of public health strategic plan for a continuum of substance abuse services and instituted a statewide substance abuse population-based system for monitoring use and treatment of alcohol and other drugs.

Additional Professional Experiences (Selected Listing)

1982-1984 **Adolescent Development Project, Berkshire Center for Families and Children, Pittsfield, MA.**

1984-1988 **Children's Hospital, Community Services, Project School Care, Boston, MA.**

1995-1996 **Capital Consulting Corp. (Maternal and Child Health Title V Workshops on Managed Care), McLean, VA.**

2001-present **Maternal and Child Health Leadership Skill Training Institute (University of South Florida, Tampa, FL – formerly University of Alabama, Birmingham, AL)**

Academic Appointments & Experience

1985-1988 **Associate Professor, Department of Behavioral Sciences and Department of Maternal and Child Health, Harvard School of Public Health, Boston, MA.**

1993-2003 **Adjunct Lecturer, Department of Maternal and Child Health, Harvard School Public Health, Boston, MA.**

BIOGRAPHICAL SKETCH – Deborah Walker

2000-present **Adjunct Professor, Department of Maternal and Child Health, Boston University School of Public Health, Boston, MA.**

2003-present **Adjunct Lecturer, Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA.**

PAPERS AND PUBLICATIONS:

Journal Articles:

Gortmaker, S.L., Walker, D.K., Jacobs, F.H. & Ruch-Ross, H. (1982). Parental smoking and the risk of childhood asthma. American Journal of Public Health, 72, 574-579.

Weitzman, M., Gortmaker, S., Walker, D.K. & Sobol, A. (l990). Maternal smoking and childhood asthma. Pediatrics, 85(4), 500-528.

Perrin, J.M., Kuhlthau, K., Walker, D.K., Stein, R.E.K., Newacheck, P.W., & Gortmaker, S.L. (1997). Monitoring health care for children with chronic conditions in a managed care environment. Maternal and Child Health Journal, 1(1), 15-23.

Soldz, S., Clark, T.W., Stewart, E., Celebucki, C., & Walker, D.K. (2002). Decreased youth tobacco use in Massachusetts 1996-1999: Evidence of tobacco control effectiveness. Tobacco Control, 11(Supplement II), ii14-ii19.

Friedman, D. J., Walker, D.K, Coltin, K., & Wood, P. (2002) Assessment partnerships between managed care and public health: the Massachusetts experience. Journal of Public Health Management and Practice, 8(4), 77-94.

Feinberg, E, Swartz, K, Zaslavsky, A, Gardner, J. & Walker, D.K. (2002) Family income and the impact of a children's health insurance program on reported need for services and unmet health need. Pediatrics, 109(2), E29.

Koh, H. K., & Walker, D.K. (2003). The role of state health agencies in cancer prevention and control: Lessons learned from Massachusetts. Cancer Epidemiology, Biomarkers and Prevention, 12(3), 261S-8S.

Mitra, M., Chung, M., Wilber, N., & Walker, D.K. (2004). Smoking status and quality of life: A longitudinal study among adults with disabilities. American Journal of Preventive Medicine, 27(3), 1-4.

Koh, H.K., Judge, C., Robbins, H., Celebucki, C., Walker, D.K., & Connolly, G. (2005). The first decade of the Massachusetts Tobacco Control Program. Public Health Reports, 120 (5), 482-495.

Coltin, K.L., Smith, N.W., Cohen, B.B., Wood, P.A., Mucci, L.A., Walker, D.K., & Freidman, D.J. (2005). Maternal and child health HEDIS 3.0 performance measures and public health data systems. Submitted for publication.

Books:

Walker, D.K. & Richmond, J.B. (eds.) (1984). Monitoring Child Health in the United States: Selected Issues and Policies. Boston, MA: Division of Health Policy Research and Education, Harvard University.

Hauser-Cram, P., Pierson, D.E., Walker D.K. & Tivnan, T. (l991). Early Education in the Public Schools: Lessons from a Comprehensive Birth to Kindergarten Program. San Francisco: Jossey-Bass.

Book Chapters:

Walker, D.K. (1999). Assessment of community health needs and services. In M. Green, R.J. Haggerty & M.L. Weitzman (Eds.), Ambulatory Pediatrics V. Philadelphia, PA: W.B.Saunders.

Walker, D.K. (2002). Public health strategies to promote healthy children, youth and families. In R.M. Lerner, F. Jacobs & D. Wertlieb (Eds.), Handbook of Applied Developmental Science, Vol. 2: Enhancing the Life Chances of Youth and Families. Thousand Oaks, CA: Sage.

BIOGRAPHICAL SKETCH – Meghan Lynch

Provide the following information for the key personnel listed on the budget page.

NAME	POSITION TITLE
MEGHAN T. LYNCH	**SENIOR ANALYST**

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include post-doctoral training).

INSTITUTION AND LOCATION	DEGREE (IF APPLICABLE)	YEAR (S)	FIELD OF STUDY
Boston University School of Public Health, Boston, Massachusetts	D.Sc.	2007	Environmental Health
	MPH	2003	Environmental Health
College of the Holy Cross, Worcester, Massachusetts	B.A.	1996	Chemistry

RESEARCH AND PROFESSIONAL EXPERIENCE:
(selected listings)

2000-2004 **Teaching Assistant. Environmental Health Department. Boston University School of Public Health.** Conducted small group discussion and extra help sessions, graded student work and tests, and taught occasional classes. Courses included Survey of Environmental Health, Risk Assessment, and Toxicology.

2001 **Consultant. John Snow, Incorporated.** Calculated exposure estimates to approximate how much contaminated water reached subjects homes using a model of drinking water distribution from several wells, along with residential address histories of subjects. Provided estimates used by plaintiff's attorney in a successful pre-lawsuit settlement with those responsible for contaminating and distributing well water thought to cause cancer in children.

2001-2002 **Consultant. Toxic Use Reduction in Food Establishments, Lexington Health Department.** Conducted background research on cleaning and pest management practices in Lexington restaurants. Conducted research on the human health effects and environmental impacts of commonly used chemicals. In conjunction with the Health Department, developed workshops and literature designed to train food-establishment personnel on the hazards of products common to the industry such as sanitizers, cleaners, degreasers, and pesticides. Encouraged the use of safer products, the proper use of products, as well as the implementation of toxic use reduction practices and integrated pest management.

2003 **Summer Intern. Office of Policy, Economics and Innovation, U.S. EPA.** Conducted research on the methods used to develop Reference Doses (RfDs) for non-cancer risk assessment. Conducted a literature review and summary of studies quantifying the extent of variability across the human population for use in the derivation of RfDs. Interacted with agency researchers and officials to present and interpret results.

2004-present **Project Manager. Gateway Park Brownfields Redevelopment Project**. Manage all aspects of a high profile twelve-acre brownfields redevelopment project, including supervising the work of all consultants and contractors such as environmental professionals, engineers and construction managers. Ensure remediation, demolition and construction is in compliance with all local, state and federal regulations such as 21E and MEPA. Represent project proponents at public meetings and hearings for various aspects of the project. Present the clean-up plan and provide toxicity information and interpretation of risk assessment methods to local officials and community members. Provide frequent updates to Executive Vice Presidents of WBDC and WPI and present project to the Board of Directors. Administer loans and grants, oversee project budget and work with controller to incorporate project budget into overall budget for the WBDC. Successfully obtained competitive grant funding of $4.5M from State and Federal sources.

2005-2007 **Research Associate. George Perkins Marsh Institute.** Conducted statistical analysis necessary to further the "Strawman" non-cancer risk assessment framework, including the replacement of traditional

BIOGRAPHICAL SKETCH – Meghan Lynch

uncertainty factors with distributions through Monte Carlo analysis. Designed and constructed a database of *in vitro* pharmacokinetic data in order to refine the human variability uncertainty factor used in the derivation of the RfD. Prepared reports to EPA on our research and co-authored papers for publication.

PUBLICATIONS:

Timothy P. Curran, Nicole M. Chandler, Robert J. Kennedy and Meghan T. Keaney, 1996. *N-α-Benzoyl-cis-4-Amino-L-Proline: A γ-Turn Mimetic.* Tetrahedron Letters, 37, (12), 1933-1936.

Timothy P. Curran and Meghan T. Keaney, 1996. *.A Novel Pyrrole Synthesis: One-Pot Preparation of Ethyl-5-Methylpyrrole 2-carboxylate* The Journal of Organic Chemistry. 61, (25), 9068-9069.

Elaine B. Krueger, Thutam P. Hopkins, Meghan T. Keaney, Michael A. Walters, and Armen M. Boldi, 2002. *Solution-Phase Library Synthesis of Furanoses*. J. Comb. Chem. 4 (3), 229 -238

Dale Hattis and Meghan K. Lynch, 2006. *Interspecies Differences and Human Inter-Individual Variability in Tissue-Level Pharmacokinetic Parameters: Task 3 Final Report Project Number EP05W002147-Description and Analyses of the Data Bases*. Clark University: Worcester, MA.

Takushi Kaneko, William McMillen, and Meghan K. Lynch, 2007. *Synthesis and Antibacterial Activity of C11, C12-cyclic Urea Analogues of Ketolides.* Bioorganic and Medicinal Chemistry Letters.

Takushi Kaneko, William McMillen, Meghan K. Lynch, and Jon Bordner, 2007. *Ring-Mediated Transformations of Macrolide Antibiotics.* Heterocycles. 72 (April), 221-230.

Dale Hattis and Meghan K. Lynch, 2007. *Empirically Observed Distributions of Pharmacokinetic and Pharmacodynamic Variability in Humans- Implications for the Derivation of Single-Point Component Uncertainty Factors Providing Equivalent Protection as Existing Reference Doses*. Toxicokinetics and Risk Assessment. J. C. Lipscomb and E. V. Ohanian, Informa Healthcare: 69-94.

Meghan K. Lynch, Wendy Heiger-Bernays and Al Ozonoff, 2007. *Quantification and Correction of the Bias in the Estimated Geometric Standard Deviation.* Manuscript in Preparation

Meghan K. Lynch, Dale Hattis, Al Ozonoff, Wendy Heiger-Bernays and Paul Schlosser, 2007. *Database of Human Interindividual Variability in In Vitro Enzyme Activities.* Manuscript in Preparation.

PRESENTATIONS:

N-α-Benzoyl-cis-4-Amino-L-Proline: A β-Turn Template. Meghan T. Keaney, Timothy P. Curran, American Chemical Society National Meeting, Chicago, IL. August 1995.

Toxic Use Reduction in Food Establishments, Beverly Anderson, Stephanie Scogland and Meghan T. Keaney Massachusetts Statehouse, Boston, MA, June 2002.

Innovation: The Legacy at Gateway Park, An Urban Brownfields Redevelopment Project. Meghan T. Lynch, Craig Blais and Kathy Campbell, EPA National Brownfields Meeting, St. Louis, MO. November 2004.

Worcester, MA GIS:A Case Study. Shane White, Meghan T. Lynch and Heather Kamyck. EPA National Brownfields Meeting, Boston, MA, November 2006.

Protection of obese and diabetic members of the population through refinement of the reference dose. Meghan T. Lynch*, and Wendy J. Heiger-Bernays, American Public Health Association 2006 Annual Meeting, Boston, MA. November, 2006.

Inter-individual differences in in vitro enzyme activities: A resource for PBTK modeling. Meghan T Lynch*, Hattis D, Schlosser P. Society for Risk Analysis 2006 Annual Meeting, Baltimore, MD. December, 2006.

City of Worcester Brownfields Inventory Project. Meghan T. Lynch. ASTWERMO Remediation and Reuse Symposium 2007, Charleston, SC, December 11-12, 2007.

BIOGRAPHICAL SKETCH—Penelope Schafer

Provide the following information for the key personnel listed on the budget page.

NAME	POSITION TITLE
PENELOPE SCHAFER	**PRINCIPAL ASSOCIATE**

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include post-doctoral training).

INSTITUTION AND LOCATION	DEGREE (IF APPLICABLE)	YEAR (S)	FIELD OF STUDY
Harvard University	A.B.	1966	Economics
Harvard University	Ph.D.	1976	Urban Planning

RESEARCH AND PROFESSIONAL EXPERIENCE:

1966-1969 **Head of Research Team for National Advisory Commission on Civil Disorders (Kerner Commission), Washington, DC. Real Estate Research Corporation, Chicago, Illinois.** Analyzed interview data to reconstruct riot scenarios, analyzed quantitative data on socio-economic conditions in neighborhoods where civil disorders occurred.

1972-1975 **Instructor. Harvard University, Department of City and Regional Planning.** Developed and taught courses dealing with state and local government finance.

1975-1977 **Economic Advisor to the Presidents of Harvard University and Massachusetts Institute of Technology.** Advised administrations of both institutions on the economic development of the metropolitan area, including employment, housing, local services and tax base.

1974-1986 **Senior Policy Analyst and Economist. Meta Systems Inc.** Project leader on effluent guidelines, water quality standards, and economic studies related to impacts of environmental regulations on industry.

1988-present **Principal Associate, Abt Associates Inc. (Selected Projects)**

1991-1992 **Project Director, Asbestos in Public Buildings: Report to Congress.** The Asbestos Hazard Emergency Response Act (AHERA) requires EPA to report to Congress on the risks associated with asbestos in commercial and public buildings. In addition, The Service Employees' International Union (SEIU) petitioned EPA to initiate a rulemaking for public and commercial buildings concerning: inspection for and identification of asbestos containing materials, notification of individuals at risk, and procedures to follow if a hazard is or potentially is present. In this project Abt Associates researched and analyzed the potential options to be presented in the 1991 Report to Congress and the response to the SEIU complaint. Among the options analyzed are: (1) Inspection and notification (Right-to-Know) requirements; (2) Improved training of custodians; (3) Operations and maintenance requirements; and (4) Regulations controlling improper removal of asbestos. The analysis drew on earlier asbestos work performed by Abt Associates and new survey data.

1993-1996 **Project Director, Title X: Residential Lead-Based Paint Hazard Reduction Act of 1992.** As part of a national strategy to eliminate lead-based paint hazards in housing as expeditiously as possible, EPA promulgated regulations to ensure that individuals are properly trained; that training programs are accredited; and that contractors are certified, as well as developing a model program for states to adopt. In addition, EPA set operating standards for lead paint inspections and abatements. The RIA developed under this project estimated the costs of these requirements and the benefits of these regulations to workers, occupants of the buildings, and the general population in the area of the buildings.

BIOGRAPHICAL SKETCH—Penelope Schafer

1995-1998 **Project Director, Study of Environmental and Economic Impacts of Brownfields Redevelopment.** For many U.S. metropolitan areas, the massive out-migration of residents and businesses from their central cities to the surrounding suburbs has been one of the more significant characteristics of post World War II land use development. These trends have exacerbated the problem of redeveloping Brownfield sites. The economic, environmental and social impacts of sprawl often include dwindling tax base and economic decline for central cities and older suburbs, concentration of poverty, consumption of open space, and inefficiently used infrastructure. The purpose of this project was to provide information on the impacts of sprawl, as compared to other forms of development, in a manner that would affect decision-making at the local and regional level. The project included a review of the literature and an identification of the major findings about the impacts of different forms of development and land use patterns. Two case studies were undertaken to verify the relationship between physical form (in particular, compact development) and the cost of public services.

2000-2003 **Project Director and Principal Analyst, Moving Towards Elimination of Lead in High Risk Children** This project sought to improve blood-lead screening among low-income children by: 1) assessing the impact and effectiveness of current screening criteria in reaching high risk, low-income children (with particular emphasis on Medicaid children), and 2) identifying state and local innovative models for the elimination of lead hazards facing low-income children, bringing together the expertise and authorities of HHS, HUD, EPA, DOJ and appropriate state and local agencies. It identified and analyzed current screening policies and practices for low-income children, using Medicaid and state data; defined the elements critical to identifying and addressing lead exposure for low-income children, including the important demographic, housing and neighborhood characteristics that place children at high risk; and conducted case studies of communities that have successfully brought together the programs and databases needed to identify high risk children and address the primary causes of lead poisoning to identify their successful approaches and the ways in which they have overcome organizational barriers.

2002-2005 **Project Director, HUD Lead Database Project** This project developed and is maintaining a national web-based lead database as a model for a national lead database system. The website provides data from 3 cities: Baltimore, Boston and Chicago, and for the state of Massachusetts. The purposes of the site are to provide local public and private organizations and families with access to data to prevent childhood lead poisoning and to facilitate multi-disciplinary collaboration to further childhood lead poisoning prevention efforts. Working with state and city agencies in Maryland, Massachusetts and Illinois, the project identified the data to be included in the database, how that data would be collected, cleaned and incorporated into the database system, how the data should be presented to support the prevention of childhood lead poisoning, and how the data would be maintained. Working with agencies and community groups, the project designed and developed a website that presented the data in a manner that is accessible by and useful to a wide range of user groups.

SELECTED REPORTS

Interim Revisions to the Asbestos Model Accreditation Plan: Economic Impact Analysis, prepared for the Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, October 1992.

Interim Rule to Revise the Asbestos Model Accreditation Plans: Regulatory Impact Analysis, prepared for the Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, July 1993.

Title IV, Sections 402 and 404 Regulatory Impact Analysis, Prepared for the Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, March 1994.

TSCA Title IV, Sections 402(a) and 404: Target Housing and Child-Occupied Facilities, Final Rule Regulatory Impact Analysis. Prepared for the Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, August 1996.

Economic Analysis of Toxic Substances Control Act Section 403: Hazard Standards, Prepared for the Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, May 1998.

Economic Analysis of Toxic Substances Control Act Section 403: Lead-Based Paint Hazard Standards, Prepared for the Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, December 21, 2000.

BIOGRAPHICAL SKETCH—Penelope Schafer

Economic Analysis for the Renovation, Repair and Painting Proposed Rule, Prepared for the Economics and Policy Analysis Branch, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, February 2006.

Memberships
American Economic Association
Association of Environmental and Resource Economists

BIOGRAPHICAL SKETCH – Ernestine Small

Provide the following information for the key personnel listed on the budget page.

NAME	POSITION TITLE
ERNESTINE SMALL	**RN-BSN COORDINATOR, COLLEGE OF NURSING, UNIVERSITY OF TENNESSEE**

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include post-doctoral training).

INSTITUTION AND LOCATION	DEGREE (IF APPLICABLE)	YEAR (S)	FIELD OF STUDY
Tuskegee Institute, Tuskegee, Alabama	B.A.	1963	Nursing
Catholic University of America, Washington DC	MSN	1967	Adult Health Clinical Specialist
University of Virginia, Charlottesville, Virginia	Certificate	1976	Adult Nurse Practitioner
North Carolina State University, Raleigh, North Carolina	EdD	1989	Adult Education

RESEARCH AND PROFESSIONAL EXPERIENCE:
(selected listings)

2008- present	**Nursing Education Coordinator.** Memphis-Shelby County Health Department, Memphis, TN
2004- present	**Associate Professor RN-BSN Coordinator/ Community Liaison.** University of TN Health Science Center, College of Nursing, Memphis, TN.
1999- 2004	**Chair, Baccalaureate Programs.** Cabarrus College of Health Sciences, Concord, NC.
1995- 1998	**Associate Professor; Chair, Center for Multiculturalism in Nursing.** University of NC-Chapel Hill, School of Nursing, Chapel Hill, NC.
1994- 1995	**Associate Professor; Chair, Department of Nursing**. Winston-Salem State University, Division of Nursing & Allied Health, Winston-Salem, NC.
1990- 1994	**Associate Professor.** College of Arts and Science, Division of Nursing & Allied Health, Durham, NC.
1984- 1990	**Associate Professor.** University of NC-Greensboro, School of Nursing, Greensboro, NC
1980- 1984	**Assistant Professor (Tenured).** University of NC-Greensboro, School of Nursing, Greensboro, NC
1974- 1980	**Assistant Professor.** University of NC-Greensboro, School of Nursing, Greensboro, NC
1967- 1974	**Instructor.** University of NC-Greensboro, School of Nursing, Greensboro, NC

COMMITTEES AND OFFICES HELD

University of Tennessee Health Science Center, College of Nursing, Memphis, TN, September 2004-present
- Admissions Committee
- (member) Progression Committee

Cabarrus College of Health Sciences, Concord, NC, January 2000-July2004
- Chair, Baccalaureate Program Faculty
- Member, College Operations Admissions Committee Curriculum Committee
- Interinstitutional Review Committee
- Research Advisory Committee

University of North Carolina-Chapel Hill, August 1995-June 1998
- Member, Adult Health Faculty Committee
- Minority Affairs Committee

Winston-Salem State University, August 1 994-June 1995
- Chair, Nursing Faculty Council
- Member, Executive Committee

BIOGRAPHICAL SKETCH – Ernestine Small

University Faculty Council
University Appeals Committee
North Carolina Central University, June 1990-July 1994
Chair, Nursing Faculty Council
Member, College of Arts & Sciences
Division Cabinet
College Honors Council
University of North Carolina-Greensboro, August 1967-June 1990
Task Force for SACS Accreditation Appeals Committee
Admissions Committee
Tenure & Promotion Committee
Search Committees (Faculty, Chancellor & Dean)
Scheduling Committee
North Carolina League for Nursing, President, 1996-1998
North Carolina Board of Nursing, elected member, 1983-1987
North Carolina Nurses Association, President, 198 1-1983
North Carolina Nurses Association, President-Elect, 1979-1981
Reviewer, Special Projects, DHHS, Division of Nursing, Washington, DC, 1977-1989

COMMUNITY ACTIVITIES:

Served on numerous boards, commissions, and committees through political appointments and voluntary services, including Center for Nursing Workforce Project, NC Governors' Task Force on Health Care, Commission on Women of City of Council of Greensboro, Guilford County Mapping Committee, YWCA Board of Directors.

FELLOW/GRADUATE STUDENT TRAINING:

Served as Chair/member of master's theses committees in School of Nursing and as a member of dissertation committees across disciplines at University of NC-Greensboro from 1980-1990.

EXTERNAL SUPPORT:

Program grants written and funding received from HRSA/TITLE III, and NC Area Health Education System during the period 1990 – 1995.

PUBLICATIONS:

Dennis, B., & Small, E. (2003). Incorporating cultural diversity in nursing care: An action plan. *The ABNF Journal*.

Participation is your choice

You will sign a consent form to tell us that you agree to be a part of the study.

Will I be compensated for my time?

To thank you for your effort, you will be eligible to receive up to $50 in gift cards to Wal-Mart if all study activities are completed.

LeMoyne-Owen College

Abt Associates Inc.

Partnership for Asthma Trigger-free Homes

PATH©

LeMoyne-Owen College

Abt Associates Inc.

Cheryl Golden, Ph.D.
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LeMoyne-Owen College
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Memphis, TN 38126
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Sue Greco, Sc.D.
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Abt Associates
Environment & Resources Division
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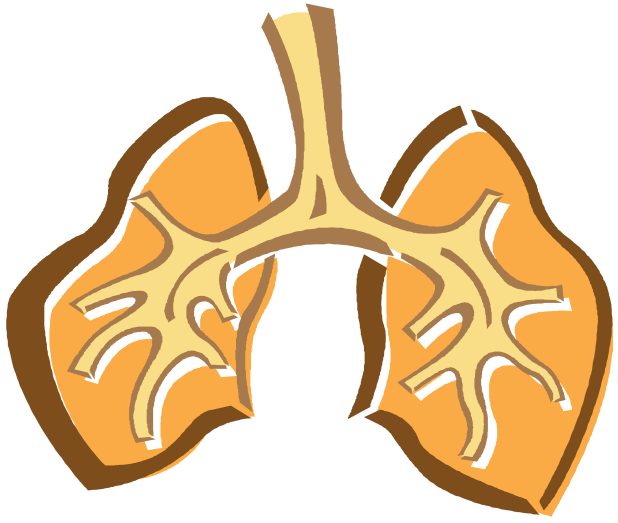
Bethesda, MD 20814
E-mail: Sue_Greco@abtassoc.com



Partnership for Asthma Trigger-free Homes

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LeMoyne-Owen College

Abt Associates Inc.

You can help control asthma

Volunteer to be a part of our study

If you want to participate, call:

Dr. Ernestine B. Small
Project Coordinator
LeMoyne-Owen College
(901) 435-1442

What is the purpose of the study?

- To identify things in the home (triggers) that can cause or worsen asthma.
- To reduce triggers that can make asthma worse.

Where will the study be held?

The study will be held at The Memphis Health Center and The Memphis Housing Authority.

When will the study start and end?

The study will start in the Fall of 2008 and end in the Winter of 2009.

Who can volunteer for the study?

Anyone who is 18 years of age or older and is the parent or guardian of a child or children with or without asthma.

If I volunteer, what will I be asked to do?

You will be asked to complete:

- A First Survey (about 30 minutes).
- An Education Session (about 2 hours).
- A Second survey (about 30 minutes).

What are the risks to me if I volunteer for the study?

- If you get tired or experience discomfort you can stop any time.
- If you feel your privacy is violated, you may stop any time.

What are the benefits of the study?

You will learn about:

- Asthma and how it can affect children and adults.
- Things in your home that may worsen asthma.
- Resources in the community to help control or reduce asthma.
- How to improve the health of your community.

Will my privacy be Protected?

- Yes. Your name, address and personal information will not be displayed on study documents.
- You will be identified by a number.
- Only research personnel and the ethics boards at LeMoyne-Owen College and Abt Associates will have access to your information.

Announcing Our

Resident Association Meeting

Time:

Date:

Place: Community Center

This Month's meeting topics:

1. **Summer activities**
2. **Housing information**
3. **Special opportunity**

Special Guests are joining us from LeMoyne-Owen College and Memphis Health Center. Come to learn about a chance for you to volunteer to take part in a study about asthma. All study volunteers will receive a gift card and other gifts are possible.

Mrs.Jackie Partee and Mr. Albert Sanders will also be with us.

Resident Association President

Telephone #:

Partnership for Asthma Trigger-free Homes

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LeMoyne-Owen College

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Calendar of events

Memphis Housing Association

If you have any questions please call:

Dr. Ernestine B. Small
Project Coordinator
LeMoyne-Owen College
(901) 435-1442

October 2008

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15 **Education Session** **Montgomery** **3:30 PM**	16 **Education Session** **Cleaborn** **1:00 PM**	17	18
19	**20** **Education Session** **GE Patterson** **3:00 PM**	**21** **Education Session** **Foote** **3:00 PM**	**22**	**23**	24	25
26	27	28	29	30	31	

Sessions will take place during your monthly Resident Association meetings in the community room

Partnership for Asthma Trigger-free Homes

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LeMoyne-Owen College | Abt

Calendar of events

Memphis Housing Association

If you have any questions please call:

Dr. Ernestine B. Small
Project Coordinator
LeMoyne-Owen College
(901) 435-1442

November 2008

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	**17** **Education Session** **GE Patterson** **3:00 PM**	**18** **Education Session** **Foote** **3:00 PM**	**19** **Education Session** **Montgomery** **3:30 PM**	**20** **Education Session** **Cleaborn** **1:00 PM**	**21**	**22** **Home Assess-ments** **(by appointment)**
23	24	25 **Return sticky traps to Resident President in Manager's Office**	26	27	28	29
30						

Sessions will take place during your monthly Resident Association meetings in the community room

Call 435-1442 if you have questions about your home assessment appointment

Partnership for Asthma Trigger-free Homes

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LeMoyne-Owen Abt

December 2008

Calendar of events

Memphis Housing Association

If you have any questions please call:

Dr. Ernestine B. Small
Project Coordinator
LeMoyne-Owen College
(901) 435-1442

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	**6** **Home Assessments (If needed)**
7	8	9	10	11	12	13 **Return sticky traps to Resident President in Manager's office (If December 6 date used for Home Assessments)**
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

You may return the sticky trap before the 13th. Call your Resident President to pick up the traps.

Partnership for Asthma Trigger-free Homes

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Calendar of events

Memphis Housing Association

If you have any questions please call:

Dr. Ernestine B. Small
Project Coordinator
LeMoyne-Owen College
(901) 435-1442

January 2009

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	**19** **3:00 PM** **Second Survey** **GE Patterson** **886 Latham** **Memphis, TN 38126**	**20** **3:00 PM** **Second Survey** **Foote** **521 Vance Park Pl.** **Memphis, TN 38106**	**21** **3:30 PM** **Second Survey** **Montgomery** **1395 Pennsylvania St.** **Memphis, TN 38106**	**22** **1:00 PM** **Second Survey** **Cleaborn** **430 S. Lauderdale St.** **Memphis, TN 38126**	23	24
25	26	27	28	29	30	31

Second Survey will take place during your monthly Resident Association meeting.

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MHA Recruitment Procedures for Physicians/Nurse Practitioners

- **Identify potential subjects.** As you see scheduled pediatric patients each day, identify parents/guardians you believe may have an interest in volunteering for the PATH study and may benefit from the study. The parent/guardian must be:
  - ✓ At least 18 years of age (**required**)
  - ✓ Caregivers of a child who spends 4/7 nights in the caregivers' home (**required**)
  - ✓ Caregivers of an asthmatic child **(preferred)** but not required

Suggested Script:

_____ (**parent's name**), I have a project I believe that could benefit you and _____ (**child's name**). This project will explain the many ways to eliminate asthma triggers in your home, making it a safer place for your family and your child. You will receive basic asthma education and information about resources that are available to you in Memphis, (such as MHC referrals and smoking cessation programs.) Would you be interested in participating in this project?

(**If the answer is Yes**). I am going to call our Director of Outreach & Community Relations to tell you more about the project and what you are expected to do to participate in the study.

(**If the answer is No)** I understand! Here is a brochure. If you change your mind call the person and telephone number on the brochure, or you may call our Director of Community Outreach. You can volunteer as late as October, 2008.

- **Call the Director of Outreach & Community Relations**. The Director will come to your office or treatment room and personally escort the parent/guardian to a location to further explain the study.

- If the Director of Outreach & Community Relations **is not present in the facility**. Give a brochure to the potential subject (which has the Director's business card attached) with instructions to call the person and telephone number on the brochure or to call the Director of Outreach & Community Relations.

- **Good Job! Thank you!**

Partnership for Asthma Trigger-free Homes

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MHC Recruitment Procedure for Director of Outreach and Community Relations

- **Stay alert for calls from health care providers.** Use beeper or pager; keep receptionist informed of location throughout the day.

- **Notify health care providers of absences from the building (lunch, meetings, vacation, illness, etc).**

- **Escort potential subject to a designated location.** After receiving notice of interest of parent/guardian go to health care provider's office or treatment room to escort the potential volunteer to a designated site to describe more details about the study and to obtain essential contact information**.**

- **Briefly describe the study & expectations of Subjects**

Suggested Script:

You are invited to participate in the Partnership for Asthma Trigger-free Homes (PATH), a study that will be conducted by LeMoyne-Owen College and Abt Associates. This study will help you to identify and reduce things in your home that can cause asthma or worsen asthma (asthma triggers.)

As a participant in this study, you will be asked to complete two surveys and an educational activity. You will also have the opportunity to volunteer for an in-home assessment. The home visit will take about 30 minutes. We are using surveys to learn what you know about asthma and asthma triggers, as well as your access to healthcare and quality of life. The educational activity will teach you about factors that can cause or worsen asthma and things you can do to help prevent asthma from occurring or to reduce asthmatic attacks. The educational activity and first survey will take about 2 hours of our time and the second survey will only take 30 minutes.

If you participate in this study, you will help us learn more about how to help children live good quality lives with Asthma and you will learn some useful information about how to reduce asthmatic attacks or to prevent asthma. In appreciation for your assistance, you will receive a $50 Wal-Mart gift card if you complete all study activities.

If you are interested in volunteering for this study, I need your telephone number and address. This information will be sent to the PATH office and someone will contact you from that office to tell you more details about the study. answer your questions and schedule a time for you to meet with the study staff to sign a consent form, complete the first survey and the education session.

- **If the answer is <u>No</u>, I will not participate.** Thank the parent/guardian for considering the project. Give them a Brochure with instructions to you or the person and number on the Brochure if the potential subject later decides to participate. (Your

business card will be attached to the Brochure). Explain that volunteers will be taken as late as October, 2008.

- **If the answer is <u>Yes</u>, I will participate.** Get full name, address and telephone number. Get suggestions about the best time to reach them. Record the contact information on a PATH Roster.

- **Email Contact Roster daily to PATH OFFICE**

- **Thank the potential subjects for their time!**

- **Good Job. Thank You!**

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Partnership for Asthma Trigger-free Homes (PATH)

LeMoyne-Owen College and Abt Associates Inc.
Memphis Health Center (MHC)
Memphis Housing Authority (MHA)

Partnership for Asthma Trigger-free Homes

PATH

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The Informed Consent Process

LeMoyne-Owen College and Abt Associates Inc.
Memphis Health Center (MHC)
Memphis Housing Authority (MHA)

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What is the purpose of this study?

- To educate participants about the things present in their homes that can cause or worsen asthma ("asthma triggers")
- To make participants aware about the many things they can do in their homes to reduce certain asthma triggers

Who is eligible to participate?

- Participation is voluntary
- You should be:
  - at least 18 years old **AND**
  - a parent (or guardian) of a child under 18 years old

What is being asked of you?

- You are asked to complete two questionnaires and an educational activity
  - **First Survey** (about 30 minutes)
  - **Education Session** (one month later, about 2 hours)
  - **Second Survey** (one month later, about 30 minutes)
  - **Home Assessment** (optional for MHA only; after education session)

The Surveys

- The surveys will:
  - assess if the education program was effective, and
  - identify common triggers and areas for improvement in housing conditions and community health.
- We want to evaluate:
  - your knowledge about asthma,
  - things that cause or make asthma worse (called **triggers**), and
  - any actions you take to prevent or reduce asthma triggers in your home.

MHA: Optional Home Assessment

- Two Student Community Peer Educators (from LeMoyne-Owen College) will come to your home for about 30 minutes to help assess if there are any **asthma triggers** present. The students will:
  - walk through and sketch your home
  - complete a checklist of indoor asthma triggers
  - place sticky traps throughout the home to catch pests
  - present you with a tailored report of steps you can take to reduce indoor asthma triggers
- You will be asked to collect the sticky traps and take them to the management office at your housing development one week after the visit.

Benefits of the Study

- You will learn how to reduce asthma triggers in your home, making it a safer place for you and your loved ones.

Compensation

- You will receive a total of $50 in gift cards to Wal-Mart after completion of:
  - First Surveys
  - Education Session
  - Second Survey

MHA: Order of Events Today

- Review and sign **Consent Form**
  - for Surveys and Education Session
  - Home Assessment (optional)
- Give us **contact information:**
  - Address & Telephone number
  - We will assign you a **PATH study identification number**
- Complete the **First Survey**

MHA: Order of Study Events

Today	*In 1 month*	*1 week to one month after education session*	*In 3 months*	*In approx. 6 months*
Consent Forms First Survey	Education Program	Home Assessment (optional)	Second Survey	Study Results

MHC: Order of Events Today

- Review and sign **Consent Form**
- Give us **contact information:**
  - Address & Telephone number
  - We will assign you a **PATH study identification number**
- Complete the **First Survey**
- Complete **Education Session**

MHC: Order of Study Events

Today	*In 2-3 months*	*In approximately 6 months*
Consent Forms First Survey Education Session	Second Survey	Study Results

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Survey

LeMoyne-Owen College and Abt Associates Inc.
Memphis Health Center (MHC)
Memphis Housing Authority (MHA)

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The survey has questions about:

- Your background and the members of your household so we can learn a little bit about you
- What you know about asthma and triggers
- Where you go for medical care
- Environmental conditions in your home
- Home repairs
- Your stress level and sense of community

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Example Questions

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Yes/No

Do you have asthma yourself? (Check appropriate response)

a) ☑ Yes

b) ☐ No

Note: This is an example response—answers are not necessarily correct

True/False

For the following statements, please check the box next to **True** if the statement is true, and the box next to **False** if it is not.

☐ True	☑ False	You can catch asthma
☑ True	☐ False	Asthma can be fatal
☑ True	☐ False	People with asthma can't exercise
☐ True	☑ False	Cleaning my home can help reduce things that make asthma worse
☑ True	☐ False	Cockroaches may make asthma worse

Note: This is an example response—answers are not necessarily correct

Multiple Choice

How long have you lived in your current home? (Check the appropriate response)

a) ☐ Less than 6 months

b) ☑ Between 6 months and 1 year

c) ☐ Between 1 year and 5 years

d) ☐ 5 years or more

Note: This is an example response—answers are not necessarily correct

Check all that apply

Check all of the following that can sometimes make asthma worse

- ☐ Air Pollution
- ☐ Dust and Dust mites
- ☑ Cockroaches (roaches or palmetto bugs)
- ☐ Tobacco smoke
- ☑ Pollen
- ☐ Very hot or very cold weather
- ☐ Certain Foods
- ☑ Pets (Cats and Dogs)
- ☐ Mice and rats
- ☐ Pesticides (chemicals that kill bugs and rodents)
- ☐ Fragrances (Air fresheners, perfumes, etc.)

Note: This is an example response—answers are not necessarily correct

Complete the Chart

Questions	Options	Person 1	Person 2	Person 3
a) What is this person's name?	First Name	Joe		
b) How is this person related to you?	Relationship	Son		
c) What is this person's age?	(AGE)	12		
d) What is this person's gender?	(M/F)	M		
e) Does this person smoke?	(Y/N)	N		
f) Has this person ever been told by a medical professional (doctor, nurse, physician's assistant, etc.) that they have asthma?	(Y/N/?)	N		
g) Does this person experience breathing problems such as coughing, wheezing, shortness of breath on a regular basis? (don't count colds)?	(Y/N/?)	?		
h) Does this person spend more than 4 nights per week at your primary residence?	(Y/N/?)	Y		

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Partnership for Asthma Trigger-free Homes (PATH)

LeMoyne-Owen College and Abt Associates Inc.
Memphis Health Center (MHC)
Memphis Housing Authority (MHA)

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Memphis Health Center
Informed Consent Form – Surveys & Education

Principal Investigators: Cheryl Golden (LeMoyne-Owen College) and Sue Greco (Abt Associates Inc.)

Co-Investigators: Ernestine Small, Meghan Lynch, and Rahn Dorsey

1. Purpose

You are invited to participate in this study because you are impacted by asthma. The Partnership for Asthma Trigger-free Homes (PATH) study will be conducted by LeMoyne-Owen College and Abt Associates Inc. This study will help you to identify and reduce things in your home that can cause asthma or worsen asthma (asthma triggers). We will use surveys (questionnaires) to collect information from you.

2. Procedure

As a participant in this study, you will be asked to complete two surveys and an education session. We are using surveys to learn what you know about asthma and asthma triggers, as well as your access to healthcare and quality of life. The education session will teach you about factors that can cause or worsen asthma and things you can do to help prevent asthma from occurring or to reduce asthmatic attacks.

The estimated time involved for each meeting is as follows:

- **First Survey** and **Education Session** (about 2.5 hours)
- One month later, **Second Survey** (about 30 minutes)

3. Participation

Your participation in this research is voluntary and you can decide to stop participating in the study at any time. Choosing not to participate in the study will not adversely influence your relationship with your doctor. You do not have to answer any questions that you do not want to answer. You must be at least 18 years old to participate in the surveys and education session. You should be a parent or guardian of a child under 18.

4. Risks & Discomforts

The Memphis Health Center knows about this study and supports it. Your confidentiality will be protected in this study, but only to the extent provided by law.

If you become tired of answering questions or experience any other discomfort during the survey, you may stop at any time. If you feel an invasion of privacy, you may stop participating at any time.

5. Benefits

This study is designed to help you to identify factors that may lead to the development or worsening of asthma. You may benefit by learning about asthma and things in your home that may start or worsen it, and resources available to you in your community to reduce asthma. If you adopt new behaviors, indoor asthma trigger levels may decrease, and your quality of life could improve.

This study may also improve your access to healthcare and empower you to make a difference in your community.

6. Compensation

You will receive a $25 gift card after completion of the First Survey **and** Educational Session. You will receive another $25 gift card after the completion of the Second Survey.

7. Confidentiality

This consent form is the only document that will have your name on it. Afterwards, all surveys and study documents will identify you by the Subject Identification Number assigned to you by the PATH study. The investigators and other researchers will have access to your survey answers. Interviewers will not discuss individual subject responses with others.

Your identity will not be revealed in the presentation of study results. No results will be made public where you can be identified. The study files may be reviewed by the ethics (institutional review) boards at LeMoyne-Owen College, Abt Associates Inc., and the U.S. Army Medical Research and Materiel Command Human Subjects Protection Office.

8. Sponsors

The money for this research is provided by the Congressionally Directed Medical Research Programs Office of the U.S. Army Medical Research and Materiel Command.

This project is led by Dr. Cheryl Golden of LeMoyne-Owen College and Dr. Sue Greco of Abt Associates Inc.

9. Questions

If you have questions about this study or your participation in it, you may contact Dr. Cheryl Golden at (901) 435-1429. She will answer any questions you may have.

You may get information about your rights as a research participant by calling the ethics (institutional review) board at LeMoyne-Owen College (Contact Dr. Rafique Uddin at (901) 435-1388) or at Abt Associates Inc. (Contact Marianne Beauregard at (617) 349-2852. Note that this is a Massachusetts phone number.)

10. Alternatives

Your other options besides being in the study are to not participate, or to get information about asthma and reducing indoor asthma triggers from other places (like libraries, internet, nurses, doctors or social workers).

11. It's Your Choice

It is your choice whether to participate in this study or not. You are free to stop answering questions at any time. You will not suffer any penalty if you do not take part or quit the study early. However, you will only be eligible to receive the gift cards if you complete the surveys and educational session.

Signature Form – Surveys & Education

I have read this consent form or have had it read aloud to me. I have been informed of the benefits and the risks involved in participating in this study. I have been told that Dr. Cheryl Golden, the Principal Investigator, will answer any future questions I may have. I will receive a signed copy of this form.

Deciding to take part in this survey is up to me. I may refuse to participate in this study. If, for any reason, I wish to end my participation during the survey, I will be free to do so, without penalty or prejudice to any rights or benefits I may have outside of this study.

Dr. Cheryl Golden, (901) 435-1429, is willing to answer any questions that I have. If I have any questions concerning my rights in this survey, I may call Dr. Rafique Uddin at (901) 435-1388 or Marianne Beauregard at (617) 349-2852. (Note that this is a Massachusetts phone number).

I agree of my own free will to participate in the described research survey. I am at least 18 years old.

Please sign two copies of the consent form. Keep one for your records.

_____ _____
Signature Date

_____
Print Name

_____ _____
Signature of PATH Staff Date

Study Use - Validated by:_____

You will be asked to give your phone number to the Researcher in the next step so that we can contact you, if necessary, in order to schedule the surveys or clarify some of your responses

Partnership for Asthma Trigger-free Homes

PATH

LeMoyne-Owen College

Abt Associates Inc.

Memphis Housing Authority
Informed Consent Form – Surveys & Education

Principal Investigators: Cheryl Golden (LeMoyne-Owen College) and Sue Greco (Abt Associates Inc.)

Co-Investigators: Ernestine Small, Meghan Lynch, and Rahn Dorsey

1. Purpose

You are invited to participate in this study because you are or may be impacted by asthma. The Partnership for Asthma Trigger-free Homes (PATH) study will be conducted by LeMoyne-Owen College and Abt Associates Inc. This study will help you to identify and reduce things in your home that can cause asthma or worsen asthma (asthma triggers.) We will use surveys (questionnaires) to collect information from you.

2. Procedure

As a participant in this study, you will be asked to complete two surveys and an education session. Some participants will have the opportunity to volunteer for an in-home assessment. We are using surveys to learn what you know about asthma and asthma triggers, as well as your access to healthcare and quality of life. The education session will teach you about factors that can cause or worsen asthma and things you can do to help prevent asthma from occurring or to reduce asthmatic attacks.

The estimated time involved in each activity is as follows:

- **First Survey** (about 30 minutes)
- One month later, **Education Session** (about 2 hours)
- One month later, **Second Survey** (about 30 minutes)
- For those who volunteer, **Home Assessment** (about 30 minutes)

3. Participation

Your participation in this research is voluntary and you can decide to stop participating in the study at any time. Choosing not to participate in the study will not adversely influence your relationship with the Memphis Housing Authority, nor will it directly affect your status as a Memphis Housing Authority tenant. You do not have to answer any questions that you do not want to answer. You must be at least 18 years old to participate in the surveys and education session. You should be a parent or guardian of a child under 18.

4. Risks & Discomforts

There are no known risks from participating in this survey. The Memphis Housing Authority knows about this study and supports it. Your confidentiality will be protected in this study, but only to the extent provided by law.

If you become tired of answering questions or experience any other discomfort during the survey, you may stop at any time. If you feel an invasion of privacy, you may stop participating at any time.

5. Benefits

This study is designed to help you to identify factors that may lead to the development or worsening of asthma. You may benefit by learning about asthma and things in your home that may start or worsen it, and resources available to you in your community to reduce asthma. If you adopt new behaviors, indoor asthma trigger levels may decrease, and your quality of life could improve.

This study may also improve your access to healthcare and empower you to make a difference in your community.

6. Compensation

You will receive a $10 gift card after completion of the First Survey; a $15 gift card after the completion of the Education Session; and a $25 gift card after the completion of the Second Survey.

Subjects who participate in the home assessment component of the project may receive additional items for use in the home that might help asthma.

7. Confidentiality

This consent form is the only document that will have your name on it. Afterwards, all surveys and study documents will identify you by the Subject Identification Number assigned to you by the PATH study. The investigators and other researchers will have access to your survey answers. Interviewers will not discuss individual subject responses with others.

Your identity will not be revealed in the presentation of study results. No results will be made public where you can be identified. The study files may be reviewed by the ethics (institutional review) boards at LeMoyne-Owen College, Abt Associates Inc., and the U.S. Army Medical Research and Materiel Command Human Subjects Protection Office.

8. Sponsors

The money for this research is provided by the Congressionally Directed Medical Research Programs Office of the U.S. Army Medical Research and Materiel Command.

This project is led by Dr. Cheryl Golden of LeMoyne-Owen College and Dr. Sue Greco of Abt Associates Inc.

9. Questions

If you have questions about this study or your participation in it, please contact Dr. Cheryl Golden at (901) 435-1429. She will answer any questions you may have.

You may get information about your rights as a research participant by calling the ethics (institutional review) board at LeMoyne-Owen College (Contact Dr. Rafique Uddin at (901) 435-1388) or at Abt Associates Inc. (Contact Marianne Beauregard at (617) 349-2852. Note that this is a Massachusetts phone number).

10. Alternatives

Your other options besides being in the study are to not participate, or to get information about asthma and reducing indoor asthma triggers from other places (like libraries, internet, nurses, doctors or social workers).

11. It's Your Choice

It is your choice whether to participate in this study or not. You are free to stop answering questions at any time. You will not suffer any penalty if you do not

take part or quit the study early. However, you will only be eligible to receive the gift cards if you complete the surveys and educational session.

Signature Form – Surveys & Education

I have read this consent form or have had it read aloud to me. I have been informed of the benefits and the risks involved in participating in this study. I have been told that Dr. Cheryl Golden, the Principal Investigator, will answer any future questions I may have. I will receive a signed copy of this form.

Deciding to take part in this survey is up to me. I may refuse to participate in this study. If, for any reason, I wish to end my participation during the survey, I will be free to do so, without penalty or prejudice to any rights or benefits I may have outside of this study.

Dr. Cheryl Golden, (901) 435-1429, is willing to answer any questions that I have. If I have any questions concerning my rights in this survey, I may call Dr. Rafique Uddin at (901) 435-1388 or Marianne Beauregard at (617) 349-2852. (Note that this is a Massachusetts phone number).

I agree of my own free will to participate in the described research survey. I am at least 18 years old.

Please sign two copies of the consent form. Keep one for your records.

_____ _____
Signature Date

_____
Print Name

_____ _____
Signature of PATH Staff Date

Study Use - Validated by:_____

Where do you live?

- ☐ Foote Homes
- ☐ Cleaborn Homes
- ☐ Montgomery Plaza
- ☐ G E Patterson
- ☐ Other

Are you interested in participating in a home assessment?
If so, please tell the Researcher.
(There is a second consent form for the home assessment.)

You will be asked to give your phone number to the Researcher in the next step so that we can contact you, if necessary, in order to schedule the surveys or clarify some of your responses

Partnership for Asthma Trigger-free Homes

PATH

LeMoyne-Owen College

Abt Associates Inc.

Memphis Housing Authority
Informed Consent Form – Home Assessment

Principal Investigators: Cheryl Golden (LeMoyne-Owen College) and Sue Greco (Abt Associates Inc.)

Co-Investigators: Ernestine Small, Meghan Lynch, and Rahn Dorsey

1. Purpose

You are invited to participate in this study because you have been or may be impacted by asthma. The Partnership for Asthma Trigger-free Homes (PATH) will be conducted by LeMoyne-Owen College and Abt Associates Inc. This study will help you to identify and reduce things in your home that can cause asthma or worsen asthma (asthma triggers.)

2. Procedure

As a participant in this study, two Student Community Peer Educators from LeMoyne-Owen College will come to your home to help assess if there are any asthma triggers present.

To do so, the students will conduct a walk-through of your home, sketch your home, and fill out a checklist. They will give you tips on what you can do to prevent any problem areas. They will also place sticky traps throughout the home to catch cockroaches. At the end of the visit, the students will present you with a report of steps you can take, specifically tailored toward your home, to reduce indoor asthma triggers. The visit will take approximately 30 minutes.

One week after the visit, you will be asked to collect the sticky traps, place them in the plastic bags that will be provided, and take them to the management office at your housing development.

3. Participation

Your participation in this research is voluntary and you can decide to stop participating in the study at any time. You do not have to do anything that you do not want to do. Choosing not to participate in the study will not adversely influence your relationship with the Memphis Housing Authority,

nor will it directly affect your status as a Memphis Housing Authority tenant.

You must be at least 18 years old to participate in this study. You should live in a Memphis Housing Authority development. You should be a parent or guardian of a child under 18.

4. Risks & Discomforts

The Memphis Housing Authority knows about this study and supports it. However, because two Community Peer Educators will be entering your home, you may feel an invasion of privacy or possible psychological injury from a privacy breech. If you feel an invasion of privacy, you may stop participating at any time.

Your confidentiality will be protected in this study, but only to the extent provided by law. If a Community Peer Educator sees any illegal activities or conditions that violate the terms of resident tenancy and/or city law, he or she may report this to the appropriate authorities.

If you become tired or experience any other discomfort during the visit, you may stop at any time.

5. Benefits

This study is designed to help you to identify factors that may lead to the development or worsening of asthma. You may benefit by learning about asthma and things in your home that may cause or worsen it, and resources available to you in your community to reduce asthma. If you adopt new behaviors, indoor asthma trigger levels may decrease, and your quality of life could improve.

This study may also improve your access to healthcare and empower you to make a difference in your community.

6. Compensation

Participants in the home assessment may receive items for use in the home that might help asthma.

7. Confidentiality

This consent form is the only document that will have your name on it. The Home Assessment will identify you by a number assigned to you as part of the PATH study.

Your identity will not be revealed in any reports made from this study. All results will refer to the group responses as a whole, not to individual responses. The study files may be reviewed by the ethics (institutional review) boards at LeMoyne-Owen College, Abt Associates Inc., and the U.S. Army Medical Research and Materiel Command Human Subjects Protection Office. The investigators and other researchers will have access to your survey answers. Interviewers will not discuss individual subject responses with others.

8. Sponsors

The money for this research is provided by the Congressionally Directed Medical Research Programs Office of the U.S. Army Medical Research and Materiel Command.

This project is led by Dr. Cheryl Golden of LeMoyne-Owen College and Dr. Sue Greco of Abt Associates Inc.

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If you have questions about this study or your participation in it, please contact Dr. Cheryl Golden at (901) 435-1429. She will answer any questions you may have.

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10. Alternatives

Your other options besides being in the study are to not participate, or to get information about reducing indoor asthma triggers from other places (like libraries, internet, nurses, doctors or social workers).

11. It's Your Choice

It is your choice to participate in the home assessment or not. You are free to stop the home assessment at any time. You will not suffer any penalty if you do not take part or quit the home assessment early. However, you may only receive the items for use in the home that might help asthma if you complete the home assessment and return the sticky traps.

Signature Form – Home Assessment

I have read this consent form or have had it read aloud to me. I have been informed of the benefits and the risks involved in participating in this study. I have been told that Dr. Cheryl Golden, the Principal Investigator, will answer any future questions I may have. I will receive a signed copy of this form.

Deciding to take part in this home assessment is up to me. I may refuse to participate in this study. If, for any reason, I wish to end my participation during the home assessment, I will be free to do so, without penalty or prejudice to any rights or benefits I may have outside of this study.

Dr. Cheryl Golden, (901) 435-1429, is willing to answer any questions that I have. If I have any questions concerning my rights in this survey, I may call Dr. Rafique Uddin at (901) 435-1388 or Marianne Beauregard at (617) 349-2852. (Note that this is a Massachusetts phone number).

I agree of my own free will to participate in the described research study. I am at least 18 years old.

Please sign two copies of the consent form. Keep one for your records.

_____ _____
Signature Date

_____
Print Name

_____ _____
Signature of PATH Staff Date

Validated by:_____

Where do you live?

- Foote Homes
- Cleaborn Homes
- Montgomery Plaza
- G E Patterson

PATH researchers will contact you in order to schedule the home assessment. You will be asked to give your name and address to the researcher in the next step.

Abt Associates

Participant Education Session

LeMoyne-Owen College and Abt Associates Inc.
Memphis Health Center and Memphis Housing Association

Partnership for Asthma Trigger-free Homes

PATH

Solving problems, guiding decisions – worldwide

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1

Partnership for Asthma Trigger-free Homes

- Thank you for participating!

2

Education Outline

I. Introduction
II. Asthma Basics
III. Things that can Worsen Asthma (Triggers)
IV. Community and Other Resources

3

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I. Introduction

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4

Study Motivation and Goals

- **Partnership for Asthma Trigger-free Homes**
- **Why this study?**
  - Asthma is a serious problem for children and adults. You or family members may be at risk.
  - There are steps you can take in your home to help prevent getting asthma or to reduce asthma symptoms.
- **Study Goal**
  - Use education to reduce people's exposure to asthma triggers in the home and improve community health.

5

PATH Components

- **Informed Consent Form**
- **Collection of Contact Information**
- **First Survey**
- **Education**
- **Second Survey**
- **Home Assessment** (optional)

6

Improving Community Health through the PATH-Asthma Study

- PATH is about participatory research, community engagement, and community empowerment.
- By participating in the study, you will:
  - Work with LeMoyne-Owen College, the Memphis Housing Authority, the Memphis Health Center, and members of your community to identify and begin to address asthma triggers.
  - Learn about changes that you and your family can make in your homes to reduce asthma triggers.
  - Gather health information that you can share with your neighbors and others in your community to improve overall community health.
  - Build relationships with people and organizations in your community that will enable you to improve your community's health in the future.

7

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II. Asthma Basics

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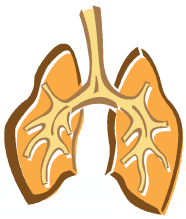
Asthma Facts

- Rates of Asthma have been increasing over the past 25 years
- In the U.S., 21 million people have asthma
- 9% of adults in Tennessee have asthma
  - 12th highest in US
- Asthma is the most serious chronic disease of childhood
- Minority children living in low-income housing can have disease rates 2 to 4 times higher than the general population
- Having uncontrolled Asthma can result in:
  - missed days of school or work
  - more doctor office and emergency department visits
  - in some cases, even death

9

Asthma causes difficulty with breathing

The lungs are made up of bronchial tubes that carry air in and out of the body.



10

Asthma Basics

- **Asthma makes breathing difficult because:**
  - The muscles in the walls of the bronchial tubes tighten and get smaller
  - The inside of the bronchial tubes swell up
  - Swollen bronchial tubes produce excess mucus and further constrict air flow

11

Asthma Symptoms

- Coughing and wheezing at night and early morning
- Coughing that doesn't go away 2 weeks after a cold
- Feelings of tightness in the chest
- Shortness of breath or rapid breathing

12

Does Asthma Have a Cure?

- **Symptoms of asthma can be controlled, but there is currently no cure**

What Causes Asthma

- **Not known, but there are genetic and environmental components**
  - Asthma tends to run in families
  - Certain things in our environment bring about asthma symptoms in sensitive people including
    - Lung infections, molds, tobacco smoke, pollution, scented products, pesticides and Allergens (cat, rodent, pollen, dust mite)

13

Asthma Treatment and Management

- **To control asthma:**
  - Avoid things that cause asthma symptoms/attacks ("triggers")
  - Keep track of symptoms
  - Take medicine as prescribed by a doctor
    - It's important for asthmatics to keep a rescue (Albuterol) inhaler available at all times
- **Track symptoms daily using**
  - peak flow meter (to measure lung function)
- **Follow an asthma action plan**

14

Asthma Medications

- **You need to speak to a doctor about which asthma medication is right for you or your child.**
  - **Services available at Memphis Health Center**
- **In general, there are 2 types of asthma medicines/inhalers:**
  - **"Controller"** to **prevent** attacks (use daily)
  - **"Rescue"** to **treat** attacks (use as needed)

15

Discussion Questions

- **How many people in the room…**
  - have asthma?
  - know someone who has asthma?
  - are related to someone who has asthma?
- **What sorts of things happen when someone has an asthma episode or attack?**
- **What sorts of things have set off asthma symptoms or an asthma attack?**
  - We'll also discuss this more in the next section.

16

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III. Asthma Triggers

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Memphis Health Center and Memphis Housing Association

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17

III. Asthma Triggers

- **Something that might start asthma symptoms is called a "trigger"**
- **There are 3 types of triggers:**
  1. Personal
  2. Outdoor
  3. Indoor
- **Remember, treatment of symptoms involves avoiding things that cause asthma attacks, keeping track of symptoms, and taking medicine**

18

Personal Triggers

- **These are things about us that can cause asthma symptoms:**
  - Allergens
  - Cold or Flu
  - Sinus infections
  - Exercise
  - Strong Emotions
  - Acid reflux (heartburn)
  - etc.

19

Outdoor Triggers

- **These are things outside that can cause asthma symptoms:**
  - Air pollution (from cars, factories, power generation)
  - Pollen (from plants or trees)
  - Hot and Humid or Cold weather
    - In times of extreme weather conditions (high humidity and extreme heat), stay inside if local news states that outdoor activity risk levels are high (orange or red)
  - Immediate change in weather (hot to cold, or vice versa)
  - Smoke in the air (fires, BBQ, burning trash)
  - etc.

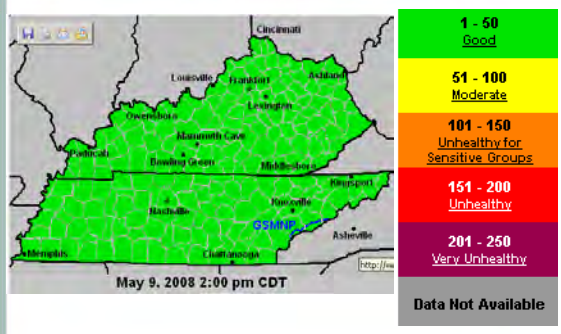
20

Air Pollution can Trigger Asthma

- **Pollutants in air may trigger asthma**
  - Examples: Ozone and Small particles
  - Asthma episodes may occur the same day or the day after high pollution days
- **Limit physical activity outdoors when the Air Quality Index (AQI) is high**
  - Above 100 is high for asthmatics
  - Above 150 is high for everyone
  - Check the AQI at http://airnow.gov/

21

Air Quality Index in Tennessee



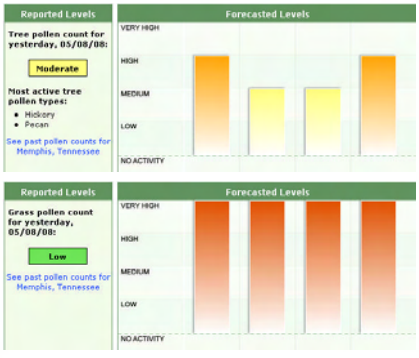
22

Pollen in the Air can Trigger Asthma

- **If you are sensitive to a particular pollen (a tree, grass, or weed), you should also avoid activities outdoor when these levels are high**
  - Check pollen levels at http://www.weather.com
- **Run air conditioner or dehumidifier during periods of humid weather**

23

Pollen Levels in Memphis



24

Indoor Triggers

- **These are things inside a home, school, office, store or any indoor place that can cause asthma symptoms:**
  a. Dust & Dust mites (located in bedding)
  b. Tobacco Smoke
  c. Pests (such as Cockroaches and Rodents)
  d. Mold (from water damage to walls, carpets, etc.)
  e. Cats, dogs, and other pets
  f. Nitrogen Dioxide (invisible & odorless gas from gas stoves, dryers and heaters)
  g. Chemical Irritants (e.g., pesticides, some perfumes, cleaners and paints)

25

Why focus on indoor triggers?

- We spend a lot of time indoors
- While we can't control the weather or outdoor pollution, there are specific actions we can take to reduce indoor asthma triggers
- By making some changes to our daily behaviors, we can help to reduce asthma triggers and improve quality of life in asthmatics or help to prevent people from getting asthma

26

a. Dust Mites

THE PROBLEM

- Dust mites are too small to be seen with the naked eye.
- They feed on human skin flakes and sweat, but don't bite or get under your skin like some other pests.
- They live in sheets, blankets, pillows, mattresses, soft furniture, carpets and stuffed toys.

WHAT YOU CAN DO

- Wash sheets and blankets once per week in hot water. Dry completely.
- Use dust-proof covers on pillows and mattresses.
- Vacuum carpets, rugs, and furniture often.
- Wash stuffed toys and dry completely. Don't keep them on the bed.

27

b. Tobacco Smoke

THE PROBLEM

- Smoking has been associated with many diseases, including cancer, asthma and diabetes.
- "Secondhand smoke" has also been associated with many diseases.
- Asthma can be triggered by smoke from cigarettes, cigars, or pipes.

WHAT YOU CAN DO

- If you smoke, try to quit.
- Don't smoke in your home or car and don't allow others to do so either.
- Take a pledge to make your home and car smoke-free:
  www.epa.gov/smokefree

28

c. Cockroaches and Rodents

THE PROBLEM

- Pests carry disease.
- Cockroaches, mice, and rats shed skin (dander) and can leave behind waste products that can trigger asthma symptoms.

WHAT YOU CAN DO

- Keep counters, sinks, tables and floors clean.
- Clean dishes, crumbs, grease, and spills.
- Store food in air-tight containers.
- Repair holes or cracks where pests may enter
- Cover trash cans.

29

What is Integrated Pest Management (IPM)?

- **IPM is a safer way to control pests than just spraying pesticides. It involves:**
  - **blocking out** pests so they can't enter your home in the first place, and
  - **removing sources of food**, **water**, and **shelter** so that they cannot survive if they do get in
- **There are steps you can take to implement IPM in your daily life. There are also steps that your building maintenance staff can take, like**
  - Repairing cracks/holes on the outside of building and keeping dumpsters away from the building

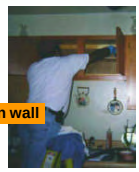
30

Five Steps to IPM

1. **Keep Pests Out**
   Use door sweeps. Screen windows. Seal holes in the wall and cracks along the baseboards and pipes so pests can't get in.
2. **Remove Pests' Food and Water**
   Clean up food, crumbs, and grease in the kitchen. Store food in sealable containers (not a cardboard box). Ensure garbage has a tight-fitting lid. Remove garbage daily. Ensure everyone in the house eats only in the kitchen and cleans their dishes right away. Don't leave out food overnight, including pet food and water dishes. Repair leaky pipes. Remove standing water. Don't over-water plants.
3. **Reduce Pests' Shelter**
   Get rid of clutter - messy rooms provide places for pests to hide. Cardboard boxes, magazines and trash attract pests. Recycle paper or plastic bags, cardboard boxes and old clothes.
4. **Monitor for Pests**
   Place sticky traps in kitchens, bathrooms, pantries and storage closets to determine if pests are a problem. This will help you develop a plan to eliminate them.
5. **Treat Existing Pest Problems**
   Use traps and baits to deal with pest problems rather than relying on pesticides. Inform your Landlord if you have a pest problem.

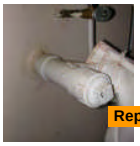
31

Examples of IPM


Seal holes in wall

Use sticky traps to catch pests


Store food in sealable containers


Repair leaky pipes

32

Discussion Questions

- **How can I use Integrated Pest Management (IPM) in my home?**
  - Note: the optional Home Assessment offered to MHA Participants will put sticky traps in your home to determine if you have a pest problem. Let Dr. Small know if you want to sign up for it.
  - You can also do this on your own by purchasing sticky traps from a hardware store
- **How can I encourage the use of IPM in my building?**

33

d. Mold

THE PROBLEM

- Mold can grow wherever there is high moisture or water. It can appear in the bathroom, on carpets, walls, etc.

WHAT YOU CAN DO

- Clean up visible mold with a bleach solution (ensure adequate ventilation).
- Use exhaust fans or open a window in the bathroom when showering or in the kitchen when cooking.
- Fix leaky plumbing as soon as possible. Or report to landlord.
- Dry damp or wet items within 2 days to avoid mold growth.
- Use a dehumidifier or air conditioner to reduce moisture indoors.

34

e. Cats and Dogs

THE PROBLEM

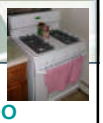
- A warm-blooded animal's urine and saliva may trigger asthma symptoms.

WHAT YOU CAN DO

- Keep pets outside of the bedrooms and off of the furniture.
- Have your pet sleep in an area that can be easily cleaned (with a hardwood or vinyl floor).
- Vacuum carpets and furniture often.
- Wash pets often (once per week)
- Keep pets outside, if possible.
- If someone in your family has a reaction to the pet, consider finding it a new home.

35

f. Nitrogen Dioxide



THE PROBLEM

- Nitrogen dioxide is an odorless gas that can irritate your eyes, nose, throat, and may cause shortness of breath.
- This gas is created wherever and whenever fuel is burned.
- In your home, it may come from the use of gas stoves, wood stoves, fireplaces, and kerosene heaters.

WHAT YOU CAN DO

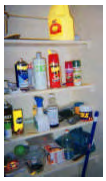
- Vent your gas stove or fireplace outside.
- Never use gas stoves for heat.
- Use an exhaust fan when you cook with a gas stove.
- Use proper fuel for kerosene or gas space heaters and operate properly.

36

g. Chemical Irritants

THE PROBLEM

- Chemical irritants can be found in products in your home, like pesticides, cleaners, bleach, paints, adhesives, scented candles or air fresheners.



WHAT YOU CAN DO

- Use these products less often and with better ventilation (open a window or use a fan).
- Try not to use these products when your child is around.
- Follow instructions on the label for use.
- Try to replace chemical cleaners with less toxic forms, like soap and water for cleaning, or a damp rag for dusting.

37

Discussion Questions

- **What was the most interesting thing you learned about asthma triggers?**
- **Which triggers may be present in your home?**
- **Based on what you learned, what changes can you make in your home?**
  - Which ones are easy? Which ones hard?
- **What are some barriers you might face in making these changes?**
  - Group suggestions/ideas about these challenges

38

Home Assessment

- If you would like more information on indoor asthma triggers, we can schedule for PATH study researchers to come to your home and give you personalized tips on how to reduce potential indoor air triggers.
- Ask Dr. Small for more information after the education session.

39

Abt Associates

IV. Community Resources

LeMoyne-Owen College and Abt Associates Inc.
Memphis Health Center and Memphis Housing Association

Partnership for Asthma Trigger-free Homes

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40

The Memphis Health Center can help you to control Asthma

- Community Health Center provides wide range of services on a sliding fee scale
- Eligible for the federal 340B Drug Pricing Program which provides significant savings on pharmaceuticals for their patients
- Asthma Services
  - Medical care, Asthma Action Plan, Peak Flow Meters
- Address: 360 E H Crump Blvd, Memphis, TN
- Phone: (901) 261-2000

41

Memphis Housing Association

- **MHA Resident Presidents**
  - Are available to answer your questions
  - They've been trained about
    - where to find help for asthma and
    - indoor asthma triggers

42

Web Resources

- **Environmental Protection Agency (EPA)**
  - http://www.noattacks.org/
  - http://www.epa.gov/asthma/
  - http://www.epa.gov/smokefree/pledge/
- **AirNow (Air Quality Index)**
  - http://airnow.gov/

43

44

Interested in Quitting Smoking?

- The Tennessee Tobacco Hotline is a free service that can give you resources to quit smoking.

- This will improve your health as well as the health of people you live with.

Call **1-800-QUIT-NOW**

45

Abt Associates

V. Handout

Partnership for Asthma Trigger-free Homes (PATH)
LeMoyne-Owen College and Abt Associates Inc.

Partnership for Asthma Trigger-free Homes
PATH

Solving problems, guiding decisions – worldwide

LeMoyne-Owen College

Abt

46

PATH study Factsheet

- Includes summary information on asthma, indoor triggers and resources, including
  - Memphis Health Center
  - Tennessee Tobacco Quitline
  - EPA's Smoke-free Homes Pledge
  - PATH study contact information

47

Wrap Up

- **Any questions?**
- **What's next for the PATH study?**
  - Second Survey
    - to be scheduled in one month
  - Home Assessment
    - Optional, for MHA Participants
    - ask if you'd like one

48

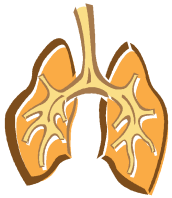
Thank You!

- **Thank you to the following for providing reference materials:**
  - Asthma Amigos Program
  - Healthy Public Housing Initiative
  - Community Environmental Health Resource Center

49

What is Asthma?

- Asthma is a disease that causes difficulty with breathing. It affects the airways that carry air in and out of the lungs (bronchioles).



- When asthma is not under control, the airways can tighten and get smaller, they may get swollen, and they may produce more mucus.
- Asthma cannot be cured, but it can be controlled. It affects over 20 million Americans and is one of the most burdensome childhood diseases.
- Symptoms of asthma include wheezing, coughing, feeling of tightness in the chest, shortness of breath, difficulty breathing, and itching throat. Severe symptoms may be described as an episode or attack.

Asthma Triggers

- Things that may make it harder to breath, causing asthma symptoms are called “triggers.”
- Triggers include things like allergies, colds/flus, some exercise, certain weather conditions, strong emotions, acid reflux, pollen, and air pollution.
- There are also many triggers inside the home.
- See inside for details.

Resources

- Talk to a doctor about your symptoms to determine if you or a family member has asthma.

- A doctor or nurse can help you to get your symptoms under control through proper use of medicine and tools, such as a peak flow meter and an asthma action plan.

The **Memphis Health Center** is available for asthma and other medical services.

Phone: (901) 261-2000
Address: 360 E H Crump Blvd
Memphis, TN 38126

PATH

The Partnership for Asthma Trigger-free Homes (PATH) aims to educate people about the many ways to eliminate dust mites, tobacco smoke, pests, mold, and chemicals in the home. By participating, you will be able to reduce indoor asthma triggers, making your home a safer place for you and your loved ones.

- If you have any questions or comments on the PATH study please call Dr. Cheryl Golden at (901) 435-1429

Created May 2008

Partnership for Asthma Trigger-free Homes

PATH©

Asthma

What it is and Steps You Can Take in Your Home to Prevent it

PATH is a partnership between

LeMoyne-Owen College

Abt Associates Inc.

Indoor Asthma Triggers

Dust Mites

Dust mites are too small to be seen with the naked eye but can be found all over the home – in bed sheets, pillows, mattresses, stuffed animals, carpets and upholstered furniture.

To reduce this trigger:

- Wash all bed sheets and stuffed toys in hot water once a week. Dry completely.
- Don't keep stuffed toys in the asthmatic's bedroom.
- Clean hard furniture, floors, and window frames with damp cloth or mop.
- Vacuum all carpets, rugs, and soft furniture weekly.
- Use allergen-proof mattress and pillow covers.

Secondhand Smoke

Smoking and secondhand smoke are associated with many diseases, including asthma.

To reduce this trigger:

- Do not smoke or allow others to smoke in your home or car.
  - If you are interested in quitting smoking, and need help, contact the free Tennessee Tobacco Quitline at 1-800-QUIT-NOW.

- Take the Smoke-Free Home Pledge to protect your loved ones from the dangers of second-hand smoke.
  - To do so, go to www.epa.gov/smokefree or call 1-866-SMOKE-FREE.

Pests

Cockroaches, mice and rats leave behind waste products (skin and droppings) that can trigger asthma.

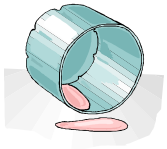
Integrated Pest Management (IPM) blocks pests from entering the home and removes potential sources of food, water, and shelter.

To reduce this trigger:

- Keep counters, sinks, tables and floors free of food, crumbs, and grease.
- Wash all dishes and put them away after use.
- Designate one place in the home to eat, clean area after eating.
- Store food in air-tight containers.
- Keep trash covered and take it out daily.
- Repair holes or cracks where pests may enter your home.
- Contact the landlord about major structural or pest problems.

Mold

Mold can grow on carpets, walls, etc. whenever there is water damage. Mold produces "spores," tiny specks you can't see, that you can breathe in.



To reduce this trigger:

- Wipe up any spills right away.
- Completely dry damp or wet items within two days to avoid mold growth, or else throw them out.
- For small areas (less than 3 ft x 3 ft), clean up mold with a mix of water and chlorine bleach (use one cup per gallon of water).
- Make sure there is adequate ventilation (open window or fan) when cleaning.
- Fix any leaks before they cause damage. Report leaks and mold damage to landlord immediately.

Pets

A cat or dog's urine, saliva, or dander (skin flakes) may trigger asthma symptoms.

To reduce this trigger:

- Keep the pet out of the bedroom and off of the carpet and upholstered furniture.
- Vacuum carpet and furniture often.
- Wash the pet once per week.

Chemicals

The chemical irritants found in pesticides, cleaners, bleach, paints, adhesives, scented candles or air fresheners can trigger asthma symptoms. Nitrogen dioxide, a gas that can come from gas cooking appliances, gas dryers, and unvented kerosene and gas space heaters is an asthma trigger as well.

To reduce these triggers:

- Try to replace chemical cleaners with less toxic forms, like soap and water for cleaning, or a damp rag for dusting.
- Avoid using bleach, pesticides, paints, and air fresheners. If necessary, use less often and with better ventilation (open a window or use a fan).

- Vent your gas stove or fireplace outside and never use gas stoves for heat.
- Use an exhaust fan when you cook with a gas stove.

A.S.M.A. (Asthma Self-Management Action) Plan *(see reverse for "Your Asthma Control Goals")*

A.S.M.A. Plan for _____ Doctor's Name _____ Date _____

Doctor's Phone Number _____ After Hours _____ Hospital/Emergency Department Phone Number _____

GREEN ZONE: Doing Well

- No cough, wheeze, chest tightness, or shortness of breath during the day or night
- Can do usual activities

If a peak flow meter is used:
Peak flow: more than _____
(80% or more of my best peak flow)
My best peak flow is _____

Take These Long-Term Control Medicines Each Day

Medicine	How much to take	When to take it

Before exercise, take _____ (Medicine) _____ (Dose) _____ (Minutes/hours before exercise)

YELLOW ZONE: Asthma Is Getting Worse

- Cough, wheeze, chest tightness, or shortness of breath or
- Waking at night due to asthma or
- Can do some, but not all, usual activities

or

Peak flow: _____ to _____
(50%–79% of my best peak flow)

FIRST

Add Quick-Relief Medicine and Keep Taking Your GREEN ZONE Medicine

_____ (short-acting β_2-agonist)
❑ 2 or ❑ 4 puffs, every 20 minutes for up to 1 hour
❑ Nebulizer, once

SECOND

If your symptoms (and peak flow, if used) *return to the GREEN ZONE* after 1 hour of above treatment:

Continue monitoring to be sure you stay in the green zone.

or

If your symptoms (and peak flow, if used) *do not return to the GREEN ZONE* after 1 hour of above treatment:

❑ Take _____ (short-acting β_2-agonist) ❑ 2 or ❑ 4 puffs or ❑ Nebulizer

❑ Add _____ (oral steroid) _____ mg per day for _____ (3–10) days

❑ Call the doctor ❑ before/❑ within _____ hours after taking the oral steroid

RED ZONE: Medical Alert!

- Very short of breath or
- Quick-relief medicines have not helped or
- Cannot do usual activities or
- Symptoms are the same or worse after 24 hours in YELLOW ZONE

or

Peak flow: less than _____
(<50% of my best peak flow)

Take This Medicine:

❑ _____ (short-acting β_2-agonist) ❑ 4 or ❑ 6 puffs or ❑ Nebulizer

❑ _____ (oral steroid) _____ mg

Call your doctor NOW. Go to the hospital or call for an ambulance if:
- You are still in the RED ZONE after 15 minutes AND
- You have not reached your doctor

DANGER SIGNS

- **Trouble walking and talking due to shortness of breath**
- **Lips or fingernails are blue**

- **Take ❑ 4 or ❑ 6 puffs of your quick-relief medicine *AND***
- **Go to the hospital or call for an ambulance (_____) *NOW!***

People who should have a copy of my A.S.M.A. plan: spouse, school nurse, coworkers, babysitter, family members/friends.

Adapted from National Heart, Lung, and Blood Institute. *Asthma Action Plan*. Bethesda, Md: US Dept of Health and Human Services: April 2007. NIH Publication 07-5251.

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PATIENT COPY

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PHYSICIAN/FILE COPY

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CASE MANAGER/FILE COPY

Your Asthma Control Goals

Asthma control: What can it mean for you?

The goals of asthma treatment are to help you:

- Experience relief from asthma symptoms, such as wheezing, coughing, shortness of breath, and chest tightness
- Need a fast-acting inhaler fewer than 2 times a week
- Sleep through the night and not wake up because of asthma symptoms
- Go to work or school and not have to miss days because of asthma
- Join in activities, including sports and exercise
- Avoid unscheduled doctor, emergency room, or urgent-care visits

Tips to help control your asthma

Your health:

- Take your asthma medicines as your doctor recommends, even when you feel well.
- Do not take over-the-counter cold medicines without talking to your doctor or pharmacist first.
- Avoid people with colds or flu as much as possible and talk to your doctor about getting a flu shot every year.

Where you live, work, or go to school:

- Keep your **HOUSE** clean of dust and molds.
- Avoid cigar and cigarette **SMOKE** as much as possible.
- Avoid strong **ODORS,** such as paint, perfume, and hair spray.
- Wear a scarf or a **COLD AIR** mask over your mouth when it's cold outside.

In addition, if you have allergies:

- Wash blankets and sheets once a week in **HOT WATER.**
- Wash clothing and stuffed toys in **HOT WATER.**
- Keep **PETS** out of the bedroom and wash pets weekly.
- Avoid going outside if the **POLLEN COUNT** is high.
- Cover mattress and pillows with airtight **PLASTIC COVERS.**

ONLY STUDY RESEARCHERS COMPLETE THIS SHADED SECTION

Subject ID # _____

Student CPE Interviewer: _____ or Self-Administered ❑

Data entry: Name:_____ Date: _____

Quality control: Name:_____ Date:_____

Child with Asthma _____

Survey ID: 100_1

Partnership for Asthma Trigger-free Homes

PATH ©

LeMoyne-Owen College

Abt Associates Inc.

Survey of Asthma and Indoor Trigger Knowledge and Behaviors

A Project of Abt Associates Inc. and LeMoyne-Owen College

FIRST SURVEY

Date: _____

	Yes	No
Was the consent form signed?	❑	❑
Are you over 18 years old?	❑	❑
Are you a parent or caregiver of a child?	❑	❑

If you answered No to any of the above, please see a PATH staff member

Location of Survey:

- ❑ Foote Homes
- ❑ Cleaborn Homes
- ❑ G.E. Patterson
- ❑ Montgomery Plaza
- ❑ Memphis Health Center

SECTION 1: BACKGROUND

First we would like to get a sense of how long you've lived in the area.

1) How long have you lived in your current home?

- ❑ a. Less than 6 months
- ❑ b. Between 6 months and 1 year
- ❑ c. Between 1 year and 5 years
- ❑ d. 5 years or more

2) How long have you lived in Memphis?

- ❑ a. Less than 1 year
- ❑ b. Between 1 and 5 years
- ❑ c. Between 5 and 10 years
- ❑ d. More than 10 years
- ❑ e. Entire life

Next, we would like an idea of how much you know about asthma signs and symptom (even if no one in your household has asthma).

3) Aside from this program, have you attended a health fair or educational session on asthma?

- ❑ a. Yes, in the last six months
- ❑ b. Yes, longer than six months ago
- ❑ c. No
- ❑ d. Don't Know

4) What happens in the body when a person has asthma? Please check all that apply.

- ❑ a. Don't know
- ❑ b. The muscles in the airway can tighten and the airways gets smaller
- ❑ c. The walls of the airway swell
- ❑ d. The airways produce excess mucus

5) What are some of the signs that a person has asthma? Please check all that apply.

- ❑ a. Coughing and wheezing at night and early morning
- ❑ b. Coughing, sneezing and feeling achy once in a while
- ❑ c. They have a fever
- ❑ d. Coughing that doesn't go away two weeks after a cold
- ❑ e. Feelings of tightness in the chest
- ❑ f. Shortness of breath or rapid breathing

6) For the following statements, please check the box next to True if the statement is true and the box next to False if it is not.

	True	False	Don't Know
6a. You can catch asthma	❑	❑	❑
6b. Asthma can be fatal	❑	❑	❑
6c. People with asthma can't exercise	❑	❑	❑
6d. Cleaning my home can help reduce things that make asthma worse	❑	❑	❑
6e. Cockroaches may make asthma worse	❑	❑	❑

7) Asthma can be controlled by

	True	False	Don't Know
7a. Avoiding things that cause asthma or make it worse	❑	❑	❑
7b. Taking the right medication	❑	❑	❑
7c. Taking medication properly	❑	❑	❑

8) Check all of the following that can sometimes make asthma worse.

	True	False	Don't Know
8a. Air Pollution	❑	❑	❑
8b. Dust and Dust mites	❑	❑	❑
8c. Cockroaches (roaches or palmetto bugs)	❑	❑	❑
8d. Tobacco smoke	❑	❑	❑
8e. Excess exposure to sunlight	❑	❑	❑
8f. Very hot or very cold weather	❑	❑	❑
8g. Pets like Cats and Dogs	❑	❑	❑
8h. Mice and rats	❑	❑	❑
8i. Pesticides (chemicals that kill bugs and rodents)	❑	❑	❑
8j. Fragrances (Air fresheners, perfumes, etc.)	❑	❑	❑
8k. Pet like Lizards and Snakes	❑	❑	❑
8l. Pollen	❑	❑	❑

9) For this question, please fill your answers about yourself in the table below at your primary residence. Please read the full question before filling in your response. If you don't know the answer to any of the questions, fill in a question mark (?) in the specified line.

Questions	Options	You
a. What is your first name?	Name	
b. What is your age?	(AGE)	
c. What is your gender?	(M/F)	
d. Do you smoke?	(Y/N)	
e. Have you ever been told by a medical professional (doctor, nurse, physician's assistant, etc.) that you have asthma?	(Y/N/?)	
f. Do you experience breathing problems such as coughing, wheezing, or shortness of breath on a regular basis? (don't count colds)	(Y/N/?)	
g. Do you spend more than 4 nights per week at this residence?	(Y/N)	
h. How many bedrooms is your home?	(Number)	

10) For this question, please fill in the information about other members of you household. Please read the full question before filling in your response. If you don't know the answer to any of the questions, fill in a question mark (?) in the specified box.

Questions	Options	Person 1	Person 2	Person 3	Person 4	Person 5
a. What is this person's name?	First Name					
b. How is this person related to you?	Relationship					
c. What is this person's age?	(AGE)					
d. What is this person's gender?	(M/F)					
e. Does this person smoke?	(Y/N)					
f. Has this person ever been told by a medical professional (doctor, nurse, physician's assistant, etc.) that they have asthma?	(Y/N/?)					
g. Does this person experience breathing problems such as coughing, wheezing or shortness of breath on a regular basis? (don't count colds)	(Y/N/?)					
h. Does this person spend more than 4 nights per week at your primary residence?	(Y/N/?)					

SECTION 2

If someone in your household has asthma, we would like to know more about this person's symptoms.

11) Does one or more of the people you listed in question 10 have asthma?

- ❑ a. Yes
  If you answered Yes to question 11, please answer question 12.
- ❑ b. No
  If you answered No to question 11, please skip to question 27 on page 10.

12) Are you the primary caregiver for anyone under 18 years of age listed in question 10 who has asthma?

- ❑ a. Yes Please circle this child's name in question 10a. If there is more than one person, please choose the child you know the most about.
  If you answered Yes to question 12, please answer questions 13 through 26.
- ❑ b. No
  If you answered No to question 12, please skip to question 27 on page 10.

SECTION 3

Please answer the questions in this section if you answered Yes to question 12 (You are a parent or guardian of a child who has asthma).

If you answered No to question 12, please skip to question 27 on page 10.

*Please answer all of the following questions about the child you care for that has asthma. Please write his/her name here:*_____

Symptoms of asthma include coughing, wheezing, shortness of breath, chest tightness or mucus production when the person does not have a cold or respiratory infection.

13) How long has it been since the child with asthma last had any symptoms of asthma?

- ❑ a. Never
- ❑ b. Less than 1 day ago
- ❑ c. 1-6 days ago
- ❑ d. 1 week to less than 2months ago
- ❑ e. 2 months to less than 1 year ago
- ❑ f. More than 1 year ago
- ❑ g. Don't know

14) During the past two months, how many times did the child with asthma see a doctor or other health professional (like a nurse) for a scheduled checkup for his/her asthma?

- ❑ a. None
- ❑ b. Once
- ❑ c. A few times
- ❑ d. More then 5 times
- ❑ e. Don’t Know

15) During the past two months, how many times did the child with asthma have to go to the emergency room because of breathing trouble?

- ❑ a. None
- ❑ b. Once
- ❑ c. A few times
- ❑ d. More then 5 times
- ❑ e. Don’t Know

	Yes	No	Don't Know
16) Does the child with asthma use an allergen proof mattress cover (a special cover to reduce dust mites)?	❑	❑	❑
17) Does the child with asthma use allergen proof pillow covers?	❑	❑	❑

18) What is the child's approximate height ___ feet _____ inches

19) What is the child's approximate weight _____pounds

Remember – You are answering these questions about the child with asthma who you care for that you selected in Question 12 on the main survey sheet.

Please write his/her name here_____.

For the following questions, please check one box (Yes, No or Don't know) for each question.

20) Have you ever heard of the following:

	Yes	No	Don't Know
20a. a peak flow meter (a device that measures how much air you can blow out of your lungs)?	❑	❑	❑
20b. asthma action plan? (An asthma management plan is a printed form that tells when to change the amount or type of medicine, when to call the doctor for advice, and when to go to the emergency room.)	❑	❑	❑

21) Has a doctor or other health professional ever taught you or the asthmatic the following:

	Yes	No	Don't Know
21a. How to recognize early signs or symptoms of an asthma episode?	❑	❑	❑
21b. What to do during an asthma episode or attack?	❑	❑	❑
21c. How to use a peak flow meter (a device that measures how much air you can blow out of your lungs) to adjust daily medications?	❑	❑	❑
21d. To use an asthma management plan specific to the child's asthma? (An asthma management plan is a printed form that tells when to change the amount or type of medicine, when to call the doctor for advice, and when to go to the emergency room.)	❑	❑	❑

Often, when someone has asthma, the parent's or guardian's life is also affected. This section is designed to find out the ways in which the child's asthma has affected your normal daily activities and how this has made you feel during the past week. Answer these questions about <u>yourself</u>.

22) During the past week, how often: (Please circle the best response)

	All of the Time	Most of the Time	Quite Often	Some of the Time	Once in a While	Hardly Any of the Time	None of the Time
22a. Did <u>you</u> feel helpless or frightened when your child experienced cough, wheeze, or breathlessness?	1	2	3	4	5	6	7
22b. Did <u>your family</u> need to change plans because of your child's asthma?	1	2	3	4	5	6	7
22c. Did you feel frustrated or impatient because your child was irritable due to asthma?	1	2	3	4	5	6	7
22d. Did your child's asthma interfere with your job or work around the house?	1	2	3	4	5	6	7
22e. Did you feel upset because of your child's cough, wheeze, or breathlessness?	1	2	3	4	5	6	7
22f. Did you have sleepless nights because of your child's asthma?	1	2	3	4	5	6	7
22g. Were you bothered because your child's asthma interfered with family relationships?	1	2	3	4	5	6	7
22h. Were you awakened during the night because of your child's asthma?	1	2	3	4	5	6	7
22i. Did you feel angry that your child has asthma?	1	2	3	4	5	6	7

23) During the past week how worried or concerned were you?

	Very, Very Worried/ Concerned	Very Worried/ Concerned	Fairly Worried/ Concerned	Somewhat Worried/ Concerned	A little Worried/ Concerned	Hardly Worried/ Concerned	Not Worried/ Concerned
23a. About your child's performance of normal daily activities?	1	2	3	4	5	6	7
23b. About your child's asthma medications and side effects?	1	2	3	4	5	6	7
23c. About being overprotective of your child?	1	2	3	4	5	6	7
23d. About your child being able to lead a normal life?	1	2	3	4	5	6	7

These Questions are about your child's (the asthmatic) access to medical care.

Please continue to answer the following questions about the child with asthma who you care for (that you selected in Question 12).
*Please write the child's name here*_____

24) Does your child have any kind of health care coverage, including private health insurance plans such as HMOs, or government plans such as Medicare?

- ❑ a. Private health insurance plan such as an HMOs
- ❑ b. Medicaid / TennCare
- ❑ c. Medicare
- ❑ d. CoverKids
- ❑ e. Other plan (please specify) _____
- ❑ f. Don't know

25) Does your child have a family doctor (a doctor that is seen regularly, also called a primary care doctor or general practitioner)?

- ❑ a. Yes
  If you answered Yes to question 25, please skip to question 27 on page 10.
- ❑ b. No
  If you answered No to question 25, please answer question 26.

26) Where does your child receive health care?

- ❑ a. Hospital (Emergency Room (ER))
- ❑ b. Memphis Health Center
- ❑ c. Community or school nurse
- ❑ d. Other Health Facility _____
- ❑ e. Nowhere

Thank you for answering these questions.
Please continue taking the survey at Question 27 on page 10.

SECTION 4

These questions ask about smoking and pesticide use in the home

27) Do you or anyone you live with ever smoke in your home?

- ❑ a. Yes
  If you answered Yes to question 27, please answer question 28.
- ❑ b. No
  If you answered No to question 27, please skip to question 29.

28) Have you considered banning smoking inside the home?

- ❑ a. Yes
- ❑ b. No

29) Do you ever have guests who smoke in your home when visiting?

- ❑ a. Yes
  If you answered Yes to question 29, please answer question 30.
- ❑ b. No
  If you answered No to question 29, please skip to question 31.

30) If yes, have you considered banning smoking inside the home?

- ❑ a. Yes
- ❑ b. No

31) If you or someone you know wanted help to quit smoking, where would you recommend going? Please check all that apply.

- ❑ a. Memphis Health Center
- ❑ b. The Tennessee Tobacco Hotline
- ❑ c. Somewhere else (please specify)_____
- ❑ d. Don't Know

32) Who takes care of household repairs in your home? (like fixing a leak or calling the plumber/landlord when something needs to be fixed)

- ❑ a. I do
- ❑ b. Someone else and I share the responsibility
- ❑ c. Someone else
- ❑ d. Everyone does some repairs
- ❑ e. No one is responsible
- ❑ f. Don't know

33) For the pests listed below, please indicate how often you see pests in your home by checking one box for each pest.

	No Pests	See less than once a week	See more than once a week
33a. Cockroaches	❑	❑	❑
33b. Ants	❑	❑	❑
33c. Mice	❑	❑	❑
33d. Rats	❑	❑	❑
33e. Other insects	❑	❑	❑

34) In the last 2 months, how often have pesticides been used in your home? (Pesticides are sprays, gels, baits, etc. against ants, cockroaches, bugs, mice and other pests.)

❑ a. More than once a week
❑ b. About once a week
❑ c. About once a month
❑ d. One or two times in the last 2 months
❑ e. Never
❑ f. Don't Know

35) Check the box next to each method that you think might work well to control cockroaches if they were a problem in someone's home. Also, check if you or someone in your home has tried this method in your home it in the last 2 months.

	Possible Method	Tried it
35a. Smoke bomb pesticides	❑	❑
35b. Sticky Traps	❑	❑
35c. Spray Pesticides	❑	❑
35d. Gel Pesticides	❑	❑
35e. Seal cracks and holes	❑	❑
35f. Place food in sealed containers (tins and plastic tubs)	❑	❑
35g. Sweep and vacuum often	❑	❑
35h. Clean up food and crumbs after eating/cooking	❑	❑

36) How might pests enter into someone's home? Check all ways they might be able to get in.

❑ a. Through big holes (bigger than your fist)
❑ b. Through small holes or cracks (the size of a dime)
❑ c. In someone's purse, backpack or diaper bag
❑ d. In items brought home from a store

SECTION 5

This section is about the cleaning habits in your household.

37) Who does most of the cleaning and laundry in your household?

- ❑ a. I do
- ❑ b. Someone else and I share the cleaning and laundry
- ❑ c. Someone else
- ❑ d. Everyone does some cleaning and laundry

38) Are there things around the home that are in the way when trying to clean such as:

	Yes	No
❑ 38a. Piles of newspapers, magazines, mail or other paper?	❑	❑
❑ 38b. Things that no one currently uses such as old toys or old clothes?	❑	❑
❑ 38c. Broken electronics or other devices that need to be fixed or thrown away?	❑	❑

39) Are dishes, pots and utensils washed and put away after every meal?

	Yes	No
❑ 39a. Washed and put away after every meal?	❑	❑
❑ 39b. Left unwashed on the tabled after eating?	❑	❑
❑ 39c. Left unwashed on the counter top or in the sink after meals?	❑	❑
❑ 39d. Placed in dishwasher after meals?	❑	❑

40) Is there a working vacuum cleaner in your home?

- ❑ a. Yes
- ❑ b. No

41) How often is your home vacuumed?

- ❑ a. Daily
- ❑ b. About once a week
- ❑ c. About once a month
- ❑ d. Less than once a month
- ❑ e. Never

42) What types of chemical products were used in your home in the last 2 months? Check all that apply.

	Yes	No	Don't Know
42a. Bleach	❑	❑	❑
42b. Air fresheners	❑	❑	❑
42c. Dusting sprays (such as pledge)	❑	❑	❑
42d. Spray Cleaners (such as Windex, 409)	❑	❑	❑
42e. Floor Cleaners (Such as Pine Sol, Mr. Clean)	❑	❑	❑
42f. Oven Cleaners	❑	❑	❑

43) Do you have a working washing machine in your home?

- ❑ a. Yes
- ❑ b. No

44) Do you have a working clothes dryer in your home?

- ❑ a. Yes
- ❑ b. No

45) Generally, how often are the sheets and pillow cases in your home washed or changed?

- ❑ a. About once a week
- ❑ b. About twice a month
- ❑ c. About once a month
- ❑ d. A few times a year
- ❑ e. Once a year
- ❑ f. Never

46) Generally, how often is the other bedding (such as the quilt or bedspread, mattress pads, or blankets) washed?

- ❑ a. About once a week
- ❑ b. About twice a month
- ❑ c. About once a month
- ❑ d. A few times a year
- ❑ e. Once a year
- ❑ f. Never

47) Is the bedding usually washed in hot, warm or cold water?

- ❑ a. Hot
- ❑ b. Warm
- ❑ c. Cold
- ❑ d. Don’t Know

SECTION 6

This section is about the general characteristics of you home.

48) Do you have:

	Yes	No
48a. Cats	❑	❑
48b. Dogs	❑	❑
48c. Other Pets	❑	❑

If you have a cat or dog, please answer the following questions. (If you don't have a cat or a dog, please skip to question 52.)

49) Are the pets allowed in the bedrooms?

- ❑ a. Frequently
- ❑ b. Sometimes
- ❑ c. Seldom
- ❑ d. Never

50) Are the pets allowed on the furniture (couch, chairs)?

- ❑ a. Frequently
- ❑ b. Sometimes
- ❑ c. Seldom
- ❑ d. Never

51) Is the pet's food and water left out overnight?

- ❑ a. Yes
- ❑ b. No

Everyone should continue with the questions below.

52) Do you have a gas stove/oven?

- ❑ a. Yes
  If you answered Yes to question 52, please answer questions 53 and 54.
- ❑ b. No
  If you answered No to question 52, please skip to question 55.

53) Is the gas stove/oven vented to the outside?

- ❑ a. Yes
- ❑ b. No
- ❑ c. Don't Know

54) Is the stove/oven ever used to heat the home?

- ❑ a. Yes
- ❑ b. No

55) In the past two months have you seen any mold in your apartment?

- ❑ a. Yes
  If you answered Yes to question 55, please answer question 56.
- ❑ b. No
- ❑ c. Don't Know

If you answered No or Don't Know to question 55, please skip to question 57.

56) Have you cleaned the mold or reported it to your landlord or building maintenance?

- ❑ a. Yes
- ❑ b. No

57) Does your bathroom have a working exhaust fan?

- ❑ a. Yes
  If you answered Yes to question 57, please answer question 58.
- ❑ b. No
- ❑ c. Don't Know

If you answered No or Don't Know to question 57, please skip to question 59.

58) Is the bathroom fan used when showering or bathing?

- ❑ a. Yes
- ❑ b. No

59) Please answer Yes/No to the following questions about the condition of your home over the last 2 months. Also, please check Requested Repair if you (or someone in your home) have asked the landlord or maintenance staff to fix this item.

Maintenance Problem	Yes	No	Requested Repair
59a. Are there holes in the walls?	❑	❑	❑
59b. Are there holes in the ceilings?	❑	❑	❑
59c. Do the pipes leak?	❑	❑	❑
59d. Are there cracks in the walls or other areas?	❑	❑	❑
59e. Does water leak into the apartment from another source (besides your pipes)?	❑	❑	❑

60) Do you live in a Memphis Housing Authority development?

❑ a. Yes
If you answered Yes to question 60, please answer question 61.
❑ b. No
If you answered No to question 60, please skip to question 62.

61) Please check which MHA development you reside in:
❑ a. Foote Homes
❑ b. GE Patterson
❑ c. Cleaborn Homes
❑ d. Montgomery Plaza

These questions are for those who don't live in MHA housing

62) Which of the following best describes your home?

❑ a. Detached home
❑ b. Attached home, townhouse, or duplex
❑ c. Apartment or unit in low rise building (3 floors or less)
❑ d. Apartment or unit in high rise building (4 floors or more)
❑ e. Mobile home
❑ f. Other_____

63) How long ago was the building you live in constructed?

❑ a. In the last 10 years
❑ b. 10 to 20 years ago
❑ c. 20 to 40 years ago
❑ d. More than 40 years ago
❑ e. Don't know

This final set of general questions refer to you (Everyone should answer these)

64) Please rate how stressed or worried you are in general.

Not at all Stressed 1 2 3 4 5 6 7 8 9 10 Very Stressed

65) Do you have a family doctor (a doctor that is seen regularly, also called a primary care doctor or general practitioner)?

- ❑ a. Yes
  If you answered Yes to question 65, please skip to question 67.
- ❑ b. No
  If you answered No to question 65, please answer question 66.

66) Where do you receive health care?

- ❑ a. Hospital (Emergency Room (ER))
- ❑ b. Memphis Health Center
- ❑ c. Community or school nurse
- ❑ d. Other Health Facility _____
- ❑ e. Nowhere

67) How are you involved in your community? Please check all the options that apply.

Do you:

- ❑ a. Visit neighbors?
- ❑ b. Talk with neighbors?
- ❑ c. Attend community events?
- ❑ d. Watch the children of your neighbors?
- ❑ e. Participate in other activities?
- ❑ f. Not involved.

68) What is the last year or grade you completed in school?

- ❑ a. 6th Grade or below
- ❑ b. 8th Grade
- ❑ c. Some High School
- ❑ d. High School Graduate or GED
- ❑ e. Some College
- ❑ f. College Graduate
- ❑ g. Graduate Degree

69) Have you received any professional training (like electrician or carpenter certificates)?

- ❑ a. Yes
- ❑ b. No

ONLY STUDY RESEARCHERS COMPLETE THIS SHADED SECTION

Subject ID # _____

Student CPE Interviewer: _____ or Self-Administered ❑

Data entry: Name:_____ Date: _____

Quality control: Name:_____ Date:_____

Survey ID: 200_1

Partnership for Asthma Trigger-free Homes

PATH©

LeMoyne-Owen College

Abt Associates Inc.

Survey of Asthma and Indoor Trigger Knowledge and Behaviors

A Project of Abt Associates Inc. and LeMoyne-Owen College

SECOND SURVEY

Date: _____

	Yes	No
Was the consent form signed?	❑	❑
Are you over 18 years old?	❑	❑
Are you a parent or caregiver of a child?	❑	❑
Did you complete the first survey?	❑	❑

If you answered No to any of the above, please see a PATH staff member

Location of Survey:

- ❑ Foote Homes
- ❑ Cleaborn Homes
- ❑ G.E. Patterson
- ❑ Montgomery Plaza
- ❑ Memphis Health Center

SECTION 1: BACKGROUND

First we would like to get a sense of how long you've lived in the area, and if this has changed since the First Survey.

1) How long have you lived in your current home?

- ❑ a. Less than 6 months
- ❑ b. Between 6 months and 1 year
- ❑ c. Between 1 year and 5 years
- ❑ d. 5 years or more

2) How long have you lived in Memphis?

- ❑ a. Less than 1 year
- ❑ b. Between 1 and 5 years
- ❑ c. Between 5 and 10 years
- ❑ d. More than 10 years
- ❑ e. Entire life

3) Have you moved since taking the First Survey?

- ❑ a. Yes
- ❑ b. No

4) For this question, please fill your answers about yourself in the table below at your primary residence. Please read the full question before filling in your response. If you don't know the answer to any of the questions, fill in a question mark (?) in the specified line.

Questions	Options	You
a. What is your first name?	Name	
b. What is your age?	(AGE)	
c. Do you smoke?	(Y/N)	
d. Have you ever been told by a medical professional (doctor, nurse, physician's assistant, etc.) that you have asthma?	(Y/N/?)	
e. Do you experience breathing problems such as coughing, wheezing, or shortness of breath on a regular basis? (don't count colds)	(Y/N/?)	
f. Do you spend more than 4 nights per week at this residence?	(Y/N)	

Next, we would like an idea of your knowledge about asthma signs and symptoms (even if no one in your household has asthma).

5) Aside from this program, have you attended a health fair or educational session on asthma?

- ❑ a. Yes, before the PATH Asthma Education Program
- ❑ b. Yes, Since the PATH Asthma Education Program
- ❑ c. No
- ❑ d. Don't Know

6) What happens in the body when a person has asthma? Please check all that apply.

- ❑ a. Don't know
- ❑ b. The muscles in the airway can tighten and the airways gets smaller
- ❑ c. The walls of the airway swell
- ❑ d. The airways produce excess mucus

7) What are some of the signs that a person has asthma? Please check all that apply.

- ❑ a. Coughing and wheezing at night and early morning
- ❑ b. Coughing, sneezing and feeling achy once in a while
- ❑ c. They have a fever
- ❑ d. Coughing that doesn't go away two weeks after a cold
- ❑ e. Feelings of tightness in the chest
- ❑ f. Shortness of breath or rapid breathing

6) For the following statements, please check the box next to True if the statement is true and the box next to False if it is not.

	True	False	Don't Know
6a. You can catch asthma	❑	❑	❑
6b. Asthma can be fatal	❑	❑	❑
6c. People with asthma can't exercise	❑	❑	❑
6d. Cleaning my home can help reduce things that make asthma worse	❑	❑	❑
6e. Cockroaches may make asthma worse	❑	❑	❑

7) Asthma can be controlled by

	True	False	Don't Know
7a. Avoiding things that cause asthma or make it worse	❑	❑	❑
7b. Taking the right medication	❑	❑	❑
7c. Taking medication properly	❑	❑	❑

8) Check all of the following that can sometimes make asthma worse.

	True	False	Don't Know
8a. Air Pollution	❑	❑	❑
8b. Dust and Dust mites	❑	❑	❑
8c. Cockroaches (roaches or palmetto bugs)	❑	❑	❑
8d. Tobacco smoke	❑	❑	❑
8e. Excess exposure to sunlight	❑	❑	❑
8f. Very hot or very cold weather	❑	❑	❑
8g. Pets like Cats and Dogs	❑	❑	❑
8h. Mice and rats	❑	❑	❑
8i. Pesticides (chemicals that kill bugs and rodents)	❑	❑	❑
8j. Fragrances (Air fresheners, perfumes, etc.)	❑	❑	❑
8k. Pet like Lizards and Snakes	❑	❑	❑
8l. Pollen	❑	❑	❑

SECTION 2

If someone in your household has asthma, we would like to know more about this person's symptoms.

9) Have any members of your home been diagnosed with asthma since the PATH Education Session?

- ❑ a. Yes
- ❑ b. No

10) Did you answer questions about a child who has asthma in the First Survey?

- ❑ a. Yes

  If you answered Yes to question 10, please answer questions 11 through 24.
- ❑ b. No

  If you answered No to question 10, please skip to question 25 on page 10.

SECTION 3

Please answer the questions in this section if you answered Yes to question 10.

(You are a parent or guardian of a child who has asthma and you answered questions about this child in the First Survey).

If you answered No to question 10, please skip to question 25 on page 10.

Please answer all of the following questions about the child you care for that has asthma. Please write his/her name here:_____

Symptoms of asthma include coughing, wheezing, shortness of breath, chest tightness or mucus production when the person does not have a cold or respiratory infection.

11) How long has it been since the child with asthma last had any symptoms of asthma?

- ❑ a. Never
- ❑ b. Less than 1 day ago
- ❑ c. 1-6 days ago
- ❑ d. 1 week to less than 2months ago
- ❑ e. 2 months to less than 1 year ago
- ❑ f. More than 1 year ago
- ❑ g. Don't know

12) During the past two months, how many times did the child with asthma see a doctor or other health professional (like a nurse) for a scheduled checkup for his/her asthma?

- ❑ a. None
- ❑ b. Once
- ❑ c. A few times
- ❑ d. More then 5 times
- ❑ e. Don’t Know

13) During the past two months, how many times did the child with asthma have to go to the emergency room because of breathing trouble?

- ❑ a. None
- ❑ b. Once
- ❑ c. A few times
- ❑ d. More then 5 times
- ❑ e. Don’t Know

	Yes	No	Don't Know
14) Does the child with asthma use an allergen proof mattress cover (a special cover to reduce dust mites)?	❑	❑	❑
15) Does the child with asthma use allergen proof pillow covers?	❑	❑	❑

16) What is the child's approximate height ___ feet _____ inches

17) What is the child's approximate weight _____pounds

Remember – You are answering these questions about the child with asthma who you care for that you selected in the First Survey.

Please write his/her name here_____.

For the following questions, please check one box (Yes, No or Don't know) for each question.

18) Have you ever heard of the following:

	Yes	No	Don't Know
18a. a peak flow meter (a device that measures how much air you can blow out of your lungs)?	❑	❑	❑
18b. asthma action plan? (An asthma management plan is a printed form that tells when to change the amount or type of medicine, when to call the doctor for advice, and when to go to the emergency room.)	❑	❑	❑

19) Has a doctor or other health professional ever taught you or the asthmatic the following:

	Yes	No	Don't Know
19a. How to recognize early signs or symptoms of an asthma episode?	❑	❑	❑
19b. What to do during an asthma episode or attack?	❑	❑	❑
19c. How to use a peak flow meter (a device that measures how much air you can blow out of your lungs) to adjust daily medications?	❑	❑	❑
19d. To use an asthma management plan specific to the child's asthma? (An asthma management plan is a printed form that tells when to change the amount or type of medicine, when to call the doctor for advice, and when to go to the emergency room.)	❑	❑	❑

Often, when someone has asthma, the parent's or guardian's life is also affected. This section is designed to find out the ways in which the child's asthma has affected your normal daily activities and how this has made you feel during the past week. Answer these questions about <u>yourself</u>.

20) During the past week, how often: (Please circle the best response)

	All of the Time	Most of the Time	Quite Often	Some of the Time	Once in a While	Hardly Any of the Time	None of the Time
20a. Did <u>you</u> feel helpless or frightened when your child experienced cough, wheeze, or breathlessness?	1	2	3	4	5	6	7
20b. Did <u>your family</u> need to change plans because of your child's asthma?	1	2	3	4	5	6	7
20c. Did you feel frustrated or impatient because your child was irritable due to asthma?	1	2	3	4	5	6	7
20d. Did your child's asthma interfere with your job or work around the house?	1	2	3	4	5	6	7
20e. Did you feel upset because of your child's cough, wheeze, or breathlessness?	1	2	3	4	5	6	7
20f. Did you have sleepless nights because of your child's asthma?	1	2	3	4	5	6	7
20g. Were you bothered because your child's asthma interfered with family relationships?	1	2	3	4	5	6	7
20h. Were you awakened during the night because of your child's asthma?	1	2	3	4	5	6	7
20i. Did you feel angry that your child has asthma?	1	2	3	4	5	6	7

21) During the past week how worried or concerned were you?

	Very, very Worried/ Concerned	Very Worried/ Concerned	Fairly Worried/ Concerned	Somewhat Worried/ Concerned	A little Worried/ Concerned	Hardly Worried/ Concerned	Not Worried/ Concerned
21a. About your child's performance of normal daily activities?	1	2	3	4	5	6	7
21b. About your child's asthma medications and side effects?	1	2	3	4	5	6	7
21c. About being overprotective of your child?	1	2	3	4	5	6	7
21d. About your child being able to lead a normal life?	1	2	3	4	5	6	7

These Questions are about your child's (the asthmatic) access to medical care.

Please continue to answer the following questions about the child with asthma who you care for (that you selected in the First Survey).
*Please write the child's name here*_____

22) Does your child have any kind of health care coverage, including private health insurance plans such as HMOs, or government plans such as Medicare?

- ❑ a. Private health insurance plan such as an HMOs
- ❑ b. Medicaid /TennCare
- ❑ c. Medicare
- ❑ d. CoverKids
- ❑ e. Other plan (please specify)_____
- ❑ f. Don't know

23) Does your child have a family doctor (a doctor that is seen regularly, also called a primary care doctor or general practitioner)?

- ❑ a. Yes
  If you answered Yes to question 23, please skip to question 25 on page 10.
- ❑ b. No
  If you answered No to question 23, please answer question 24.

24) Where does your child receive health care?

- ❑ a. Hospital (Emergency Room (ER))
- ❑ b. Memphis Health Center
- ❑ c. Community or school nurse
- ❑ d. Other Health Facility _____
- ❑ e. Nowhere

Thank you for answering these questions.
Please continue taking the survey at Question 25 on page 10.

SECTION 4

These questions ask about smoking and pesticide use in the home

25) Do you or anyone you live with ever smoke in your home?

- ❑ a. Yes
  If you answered Yes to question 25, please answer question 26.
- ❑ b. No
  If you answered No to question 25, please skip to question 27.

26) Have you considered banning smoking inside the home?

- ❑ a. Yes
- ❑ b. No

27) Do you ever have guests who smoke in your home when visiting?

- ❑ a. Yes
  If you answered Yes to question 27, please answer question 28.
- ❑ b. No
  If you answered No to question 27, please skip to question 29.

28) If yes, have you considered banning smoking inside the home?

- ❑ a. Yes
- ❑ b. No

29) If you or someone you know wanted help to quit smoking, where would you recommend going? Please check all that apply.

- ❑ a. Memphis Health Center
- ❑ b. The Tennessee Tobacco Hotline
- ❑ c. Somewhere else (please specify)_____
- ❑ d. Don't Know

30) Who takes care of household repairs in your home? (like fixing a leak or calling the plumber/landlord when something needs to be fixed)

- ❑ a. I do
- ❑ b. Someone else and I share the responsibility
- ❑ c. Someone else
- ❑ d. Everyone does some repairs
- ❑ e. No one is responsible
- ❑ f. Don't know

31) For the pests listed below, please indicate how often you see pests in your home by checking one box for each pest.

	No Pests	See less than once a week	See more than once a week
35a. Cockroaches	❑	❑	❑
35b. Ants	❑	❑	❑
35c. Mice	❑	❑	❑
35d. Rats	❑	❑	❑
35e. Other insects	❑	❑	❑

32) In the last 2 months, how often have pesticides been used in your home? (Pesticides are sprays, gels, baits, etc. against ants, cockroaches, bugs, mice and other pests.)

- ❑ a. More than once a week
- ❑ b. About once a week
- ❑ c. About once a month
- ❑ d. One or two times in the last 2 months
- ❑ e. Never
- ❑ f. Don't Know

33) Check the box next to each method that you think might work well to control cockroaches if they were a problem in someone's home. Also, check if you or someone in your home has tried this method in your home it in the last 2 months.

	Possible Method	Tried it
33a. Smoke bomb pesticides	❑	❑
33b. Sticky Traps	❑	❑
33c. Spray Pesticides	❑	❑
33d. Gel Pesticides	❑	❑
33e. Seal cracks and holes	❑	❑
33f. Place food in sealed containers (tins and plastic tubs)	❑	❑
33g. Sweep and vacuum often	❑	❑
33h. Clean up food and crumbs after eating/cooking	❑	❑

34) How might pests enter into someone's home? Check all ways they might be able to get in.

- ❑ a. Through big holes (bigger than your fist)
- ❑ b. Through small holes or cracks (the size of a dime)
- ❑ c. In someone's purse, backpack or diaper bag
- ❑ d. In items brought home from a store

SECTION 5

This section is about the cleaning habits in your household.

35) Who does most of the cleaning and laundry in your household?

- ❑ a. I do
- ❑ b. Someone else and I share the cleaning and laundry
- ❑ c. Someone else
- ❑ d. Everyone does some cleaning and laundry

36) Are there things around the home that are in the way when trying to clean such as:

	Yes	No
❑ 36a. Piles of newspapers, magazines, mail or other paper?	❑	❑
❑ 36b. Things that no one currently uses such as old toys or old clothes?	❑	❑
❑ 36c. Broken electronics or other devices that need to be fixed or thrown away?	❑	❑

37) Are dishes, pots and utensils washed and put away after every meal?

	Yes	No
❑ 37a. Washed and put away after every meal?	❑	❑
❑ 37b. Left unwashed on the tabled after eating?	❑	❑
❑ 37c. Left unwashed on the counter top or in the sink after meals?	❑	❑
❑ 37d. Placed in dishwasher after meals?	❑	❑

38) Is there a working vacuum cleaner in your home?

- ❑ a. Yes
- ❑ b. No

39) How often is your home vacuumed?

- ❑ a. Daily
- ❑ b. About once a week
- ❑ c. About once a month
- ❑ d. Less than once a month
- ❑ e. Never

40) What types of chemical products were used in your home in the last 2 months? Check all that apply.

	Yes	No	Don't Know
40a. Bleach	❑	❑	❑
40b. Air fresheners	❑	❑	❑
40c. Dusting sprays (such as pledge)	❑	❑	❑
40d. Spray Cleaners (such as Windex, 409)	❑	❑	❑
40e. Floor Cleaners (Such as Pine Sol, Mr. Clean)	❑	❑	❑
40f. Oven Cleaners	❑	❑	❑

41) Do you have a working washing machine in your home?

- ❑ a. Yes
- ❑ b. No

42) Do you have a working clothes dryer in your home?

- ❑ a. Yes
- ❑ b. No

43) Generally, how often are the sheets and pillow cases in your home washed or changed?

- ❑ a. About once a week
- ❑ b. About twice a month
- ❑ c. About once a month
- ❑ d. A few times a year
- ❑ e. Once a year
- ❑ f. Never

44) Generally, how often is the other bedding (such as the quilt or bedspread, mattress pads, or blankets) washed?

- ❑ a. About once a week
- ❑ b. About twice a month
- ❑ c. About once a month
- ❑ d. A few times a year
- ❑ e. Once a year
- ❑ f. Never

45) Is the bedding usually washed in hot, warm or cold water?

- ❑ a. Hot
- ❑ b. Warm
- ❑ c. Cold
- ❑ d. Don't Know

SECTION 6

This section is about the general characteristics of you home.

46) Do you have:

	Yes	No
46a. Cats	❑	❑
46b. Dogs	❑	❑
46c. Other Pets	❑	❑

If you have a cat or dog, please answer the following questions. (If you don't have a cat or a dog, please skip to question 50.)

47) Are the pets allowed in the bedrooms?

- ❑ a. Frequently
- ❑ b. Sometimes
- ❑ c. Seldom
- ❑ d. Never

48) Are the pets allowed on the furniture (couch, chairs)?

- ❑ a. Frequently
- ❑ b. Sometimes
- ❑ c. Seldom
- ❑ d. Never

49) Is the pet's food and water left out overnight?

- ❑ a. Yes
- ❑ b. No

Everyone should continue with the questions below.

50) Do you have a gas stove/oven?

- ❑ a. Yes
  If you answered Yes to question 50, please answer questions 51 and 52.
- ❑ b. No
  If you answered No to question 50, please skip to question 53.

51) Is the gas stove/oven vented to the outside?

- ❑ a. Yes
- ❑ b. No
- ❑ c. Don't Know

52) Is the stove/oven ever used to heat the home?

- ❑ a. Yes
- ❑ b. No

53) In the past two months have you seen any mold in your apartment?

- ❑ a. Yes
  If you answered Yes to question 53, please answer question 54.
- ❑ b. No
- ❑ c. Don't Know

If you answered No or Don't Know to question 53, please skip to question 55.

54) Have you cleaned the mold or reported it to your landlord or building maintenance?

- ❑ a. Yes
- ❑ b. No

55) Does your bathroom have a working exhaust fan?

- ❑ a. Yes
  If you answered Yes to question 55, please answer question 56.
- ❑ b. No
- ❑ c. Don't Know

If you answered No or Don't Know to question 55, please skip to question 57.

56) Is the bathroom fan used when showering or bathing?

- ❑ a. Yes
- ❑ b. No

57) Please answer Yes/No to the following questions about the condition of your home over the last 2 months. Also, please check Requested Repair if you (or someone in your home) have asked the landlord or maintenance staff to fix this item.

Maintenance Problem	Yes	No	Requested Repair
57a. Are there holes in the walls?	❑	❑	❑
57b. Are there holes in the ceilings?	❑	❑	❑
57c. Do the pipes leak?	❑	❑	❑
57d. Are there cracks in the walls or other areas?	❑	❑	❑
57e. Does water leak into the apartment from another source (besides your pipes)?	❑	❑	❑

This set of general questions refers to you.
(Everyone should answer these questions)

58) Please rate how stressed or worried you are in general.

Not at all Stressed 1 2 3 4 5 6 7 8 9 10 Very Stressed

59) Do you have a family doctor (a doctor that is seen regularly, also called a primary care doctor or general practitioner)?

❑ a. Yes
If you answered Yes to question 59, please skip to question 61.
❑ b. No
If you answered No to question 59, please answer question 60.

60 Where do you receive health care?

❑ a. Hospital (Emergency Room (ER))
❑ b. Memphis Health Center
❑ c. Community or school nurse
❑ d. Other Health Facility _____
❑ e. Nowhere

61) How are you involved in your community? Please check all the options that apply.

Do you:
❑ a. Visit neighbors?
❑ b. Talk with neighbors?
❑ c. Attend community events?
❑ d. Watch the children of your neighbors?
❑ e. Participate in other activities?
❑ f. Not involved.

62) What is the last year or grade you completed in school?

- ❑ a. 6th Grade or below
- ❑ b. 8th Grade
- ❑ c. Some High School
- ❑ d. High School Graduate or GED
- ❑ e. Some College
- ❑ f. College Graduate
- ❑ g. Graduate Degree

63) Have you received any professional training (like electrician or carpenter certificates)?

- ❑ a. Yes
- ❑ b. No

This is the final set of questions, and have to do with Program Evaluation

64) How useful did you find the PATH Asthma Program?

- ❑ a. Very useful
- ❑ b. Somewhat useful
- ❑ c. Not very useful
- ❑ d. Not useful at all

65) Did you participate in the home assessment?

- ❑ a. Yes
  If you answered Yes to question 65, please answer question 66.
- ❑ b. No
  If you answered No to question 65, please skip to question 67.

66) How useful was the home assessment?

- ❑ a. Very useful
- ❑ b. Somewhat useful
- ❑ c. Not very useful
- ❑ d. Not useful at all

67) How much would you say you learned in the PATH Asthma Program?

- ❑ a. A lot
- ❑ b. Some
- ❑ c. A little
- ❑ d. Not too much

68) The PATH program described a lot of things people can do at home to reduce a child's chances of getting asthma. In general, how effective do you think doing these things are in preventing asthma?

- ❑ a. Very effective
- ❑ b. Somewhat effective
- ❑ c. Not too effective

69) Have you tried any of the suggestions from the PATH Asthma program?

- ❑ a. Yes, several
- ❑ b. Yes, a few
- ❑ c. No

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Home Assessment Instructions to be followed by LeMoyne-Owen College (LOC) Community Peer Educators (CPE).

**Remember, you will meet in the pre-determined central location 1 hour before the home assessment visit and return there at the end of all appointments. The Resident President will escort you to each home.

Phone number of Resident President: _____

1. Introduction

- Introduce yourself.
    - "My name is _____. I'm with the LOC-Abt Asthma study and I'm here to complete a home assessment as part of that project. It will take about 30 minutes."
- Explain the purpose of the home visit assessment.
    - "The home assessment is to provide you with more detailed information about things in your home that can cause or worsen asthma (indoor asthma triggers) that you learned about in the education program. It will help you to identify ways you can reduce triggers in your home. It will also help us as researchers to determine which triggers are most likely to be found in your home and homes similar to yours."
- Explain to the Resident that, as part of the home assessment, you will draw a floor plan, take notes, and assess the potential problem areas in their home.
- Explain that you will be placing sticky traps in their home to collect pest sample samples.
- Explain that after a period of 7 days, the Resident is responsible for picking up and delivering the sticky traps to the Resident President in the building Manager's office.

2. Sketch the Apartment (Floor Plan)

- Walk through the apartment.
- Using the provided grid, sketch the apartment floor plan. This should include all the rooms and the location of major appliances.
    - For each **door**, draw a rectangle: 
    - For each **window**, draw a circle: 
    - For each **area/room that a child sleeps or plays** in, draw a star: 

3. Survey the Apartment Using the Floor Plan and Home Checklist

- Look for potential asthma triggers, noting them on the **Floor Plan** and **Home Checklist**.
    - **Pests**: The most common pests are cockroaches or rodents. Evidence of cockroaches includes body parts and droppings, and evidence of rodents includes hair, skin flakes, droppings and urine. These are often found in areas with food and water, such as kitchens, bathrooms, and basements. In addition:

        - Mark down any holes in the wall where these pests could enter the apartment. Be thorough in your search for holes – pests can enter through very small holes and cracks (less than the size of a dime).
        - Make note of improper food or garbage storage, because this attracts pests.
        - Clutter, which includes piles of trash, paper, clothes, or other items, can provide a home for cockroaches and other pests. Note on the **Checklist** if there are newspapers, toys or clothes left out
        - Mark any dirty dishes not put away. Pests are attracted to dirty dishes.
        - Circle Y on the **Checklist** if there is a warm-blooded pet, such as a cat or dog, in the home, and N if there is not. Also, Circle Y if the pet is allowed on the furniture or in the child's bedroom (or N if it is not).
    - **Dust Mites:** Dust mites are too small to be seen with the naked eye, but look for stuffed toys, heavy rugs and curtains, and upholstered furniture in the bedrooms. Remind the Resident about washing bedding and stuffed toys in hot water and vacuuming often to reduce dust mites in the bedroom. Ask if mattress covers and/or pillow covers are used on the beds.
    - **Mold**: Mold and mold spores are most often found in areas with a lot of moisture, such as bathrooms and kitchens.
        - Look for visible mold, wet or damp areas, or evidence of water damage (discoloration, deformed paint) on the wall, under sinks, outside of showers, on the walls, on the carpet, or around windows.
        - Note if there is a working fan in the bathroom.
        - Make note of any leaky pipes. These will cause mold to grow unless they are fixed.
    - **Indoor Chemicals:** Indoor chemicals are a trigger for asthma and include secondhand smoke, pesticides, and nitrogen dioxide. Nitrogen dioxide is an odorless gas that is associated with gas cooking appliances, gas dryers, and unvented kerosene and gas space heaters. An appliance is "unvented" if it burns natural gas, kerosene or other fuel, but does not have a pipe that sends the exhaust outside.
        - Circle Y on the **Checklist** if there is a smoker who lives in the home and Y if the smoker smokes inside the home (and N if there is no smoker or they do not smoke inside the home).
        - Make sure to note any unvented appliances.
        - Ask the Resident if any pesticides are used in the home (e.g., to control bugs, ants, cockroaches, rodents, etc.) Note where the pesticide is used on the **Checklist**.

- When filling out the **Floor Plan**, use the previous instructions to look for potential asthma trouble spots, and the following letters to represent certain hazards:
    - **P:** pests or pest droppings. (e.g., cockroaches and rodents)
    - **M:** mold, or mold spores
    - **H:** holes in the wall.
    - **U:** unvented appliance
    - **W:** water damage

- **L:** leaky pipes

4. Place Sticky Traps in Apartment

- Ensure the sticky traps have been clearly labeled with the Date, Subject's ID #, Unit #, and location in the Unit and Room.
- Place four (4) sticky traps in predetermined locations during the walkthrough.
  - Place three (3) in the Kitchen, in the general area of:
    - the floor behind the refrigerator
    - the floor behind the stove
    - the floor behind the sink
  - Place one (1) in the Bathroom, in the general area of:
    - the floor, behind the sink
- When placing traps:
  - Place them tightly up against a wall, with the opening of the trap as close as possible to the corner. Cockroaches tend to travel closely to the wall, and the traps will be much more effective if placed completely against the wall.
  - Put the traps in hard-to-reach corners if possible, because this is where roaches often are.
  - If you do find a nest, place the traps close to it. Cockroaches generally only travel five to ten feet from their nest; young cockroaches travel even shorter distances.
  - Put the traps in a location where they will not get wet. The glue will not work if it is wet.
- Tell the Resident:
  - Where you have placed the sticky traps.
  - That they should not move the traps.
  - To avoid sweeping or mopping around the traps.
  - To keep children and pets away from the traps.
  - If someone gets glue from the trap on him or herself, remove it with baby or vegetable oil, and then wash with dishwashing detergent or soap and water.
- Give the Resident the **Sticky Trap Instructions** sheet which contains instructions for collecting the sticky traps and warning information. Review the steps the Resident must follow when collecting the traps (these are on the **Sticky Trap Instructions** sheet):
  1) Put on the latex gloves provided.
  2) Collect traps and place them in the plastic (Ziploc-type) bag
  3) Seal the bag
  4) Write the date on the outside of the bag
  5) Remove your gloves and throw them away
  6) Wash your hands with soap and water
  7) Return the bag to the collection point

- Give the Resident the labeled plastic bags and gloves for when they remove the traps in one week (seven days). It is OK if the Resident collects the traps before or after 7 days, it is just important for the Resident to write down the date they collected the traps, no matter what. The date should be written on the label of the plastic bag (one bag per trap.) Encourage the Resident not to throw the trap away. You should write down the date the Resident should collect the traps on the **Sticky Trap Instructions**. (The target date will be 7 days from the date of the home assessment.)
- Check off the sticky trap drop-off location in the Resident's building on the **Sticky Trap Instructions**. Tell the Resident when the Manager's office is open, and remind him/her that he/she can call the Resident President with any questions.

5. Present the Resident with the Home Assessment Report

- The **Resident Report** will consist of a checklist of triggers and a short summary of ways to reduce the trigger.
- Reinforce the components of the educational session by giving specific advice in each room about what the Resident can do to reduce indoor asthma triggers. (Follow instructions from the **Resident Report**.). Remember from your class training that suggestions should be made in a polite, non-judgmental way. The Resident may not be able to implement all of your suggestions for a variety of reasons, so you should simply encourage them to incorporate what they can.
- Your job is to place a check next to each trigger that might be a problem in the home.

6. Review

- Following the instructions above, you should have completed the following documents during this home assessment: (These documents will need to be submitted to Dr. Ernestine Small, for data entry.)
    - **Home Checklist**
    - **Floor Plan**
- You should have provided the Caregiver/Resident with the following items:
    - **Resident Report**
    - **Sticky Trap Instructions**
    - Four (4) sticky traps placed in kitchen (3) and bathroom (1)

7. End the Visit

- Remind the Resident about the sticky trap procedure
- Answer any questions.
- Thank the Resident for participating in the home assessment portion of the PATH study.

****Remember to meet at the central location after each visit.**

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Home Assessment: Checklist

Checklist to be completed by LOC CPEs

Subject ID #: _____	**CPE 1 Initials:** _____
Address (circle):	**CPE 2 Initials:** _____
Foote Homes Cleaborn Homes	**Date:** _____
Montgomery G E Patterson	

Directions: Make a checkmark (✓) in the box if the problem appears in the room or area. Put a star (★) inside any room(s) where a child sleeps or plays. Write any other hazards and/or necessary details on the back of this form.

			Entryway	Bathroom	Kitchen	Living Room	Dining Room	Bedroom 1	Bedroom 2	Bedroom 3
Problem Triggers	**Pests**	**Cockroach sighting**								
		Rodent sighting								
		Hole(s) in wall								
		Food and garbage storage problems								
		Clutter (newspapers, toys, etc. left out)								
		Dirty dishes left out								
		Pets in the home? (Y / N) Allowed on furniture or in the bedroom? (Y / N)								
	Dust Mites	**Stuffed toys**								
		Heavy rugs and curtains								
		Upholstered furniture								
		Are mattresses and pillow covers used? (Y / N)								
	Mold	**Visible mold**								
		Wet or damp areas								
		Water damage on walls, carpet								
		Evidence of leaking pipe(s)								
		Working fan in bathroom?								
	Chemicals	**Smoker living in the home? (Y / N) Does he/she smoke inside? (Y / N)**								
		Unvented gas oven/dryer/heater								
		Pesticide use								

Were sticky traps placed near the following locations?

Kitchen: ☐ **Sink** ☐ **Refrigerator** ☐ **Stove**

Bathroom: ☐ **Sink** **Total number of traps left:**_____

NOTES:

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Home Assessment: Floor Plan

Subject ID #:	_____	**CPE 1 Initials:**	_____
Address (circle):		**CPE 2 Initials:**	_____
Foote Homes	Cleaborn Homes	**Date:**	_____
Montgomery	College Park		

Key:		**Symbols:**	
Pests/Pest Droppings	**P**	Door	▭
Mold/Mildew	**M**		
Hole(s) in the Wall	**H**	Window	◯
Unvented Appliance	**U**		
Water Damage	**D**	Child's Area	★
Leaky Pipes	**L**		

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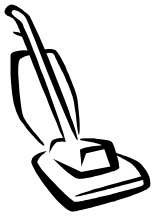
Home Assessment: Resident Report

Based on the PATH Home Assessment, you may have the indoor asthma triggers checked below. Here are some steps you can take to reduce them.



Dust Mites (too small to be seen, but found in carpets, beds, and stuffed animals):

- Wash all linens and stuffed toys in hot water once a week. Dry completely.
- Don't keep stuffed toys in the asthmatic's bedroom.
- Clean hard furniture, floors, and window frames with damp cloth or mop.
- Vacuum all carpets, rugs, and soft furniture weekly.
- Use allergen-proof mattress and pillow covers.

Smoking in the Home:

- Do not smoke or allow others to smoke in the home or car.
- Take a pledge to keep your home smoke-free.
  - Go to www.epa.gov/smokefree or call 1-866-SMOKE-FREE.

Pests (cockroaches and rodents):

- Keep counters, sinks, tables and floors free of food, crumbs, and grease.
- Wash all dishes and put them away after using them.
- Store food in air-tight containers.
- Keep trash covered and remove it daily.
- Fix holes or cracks where pests may enter your home.
- Contact the landlord about major structural or pest problems.

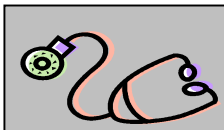
Mold (grows on damp or wet surfaces, and is often gray or black, but could be green, orange, or white):

- Wipe up any spills right away to keep surfaces clean and dry.
- Dry damp or wet items within two days to avoid mold growth, or else throw them out.
- Clean up mold with a mix of water and chlorine bleach (use one cup per gallon of water.)
- Make sure there is adequate ventilation (open window or fan) when cleaning.
- Fix any leaks before they cause damage. Report problems to Landlord immediately.

Warm-blooded Pets (dogs, cats, etc.):

- Keep the pet outside, if possible.
- Vacuum carpet and furniture often.
- Washing the pet often (once per week) may help.
- Keep the pet out of the bedroom and off of the carpet and upholstered furniture.

Call 911 in the case of an asthma (or other medical) emergency.



The Memphis Health Center is available for asthma and other medical services

Call (901) 261-2000

If you have any questions or comments on the PATH study please call Dr. Cheryl Golden

Call (901) 435-1429

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Sticky Trap Instructions

1. What they are:

- Sticky traps use glue to trap cockroaches and other pests and help to determine if they are a problem in your home.
- Four traps will be placed in your home. Three will be in the kitchen, near the sink, stove, and refrigerator. One will be placed in the bathroom, near the sink.

2. Our Role:

- Researchers from LeMoyne-Owen College (Student Community Peer Educators) will place sticky traps in the designated areas during the Home Assessment. These will be clearly labeled with your Unit number, Study Subject identification number, number room, and location in the room.
- A Student Community Peer Educator will give you labeled plastic (Ziploc-type) bags and gloves to collect the samples in one week.
- The Student Community Peer Educators can answer any questions you have about the sticky traps to the best of their abilities.

3. Your Role:

- Do not move the traps until it is time to collect them.
- Do not mop or sweep the area around the traps. Water or dust will clog up the glue and make the trap less likely to work.
- Keep children and pets away from the traps. If a child or pet does get glue on him or herself, use vegetable oil or baby oil to remove the glue, and then wash him or her with dishwashing detergent or soap and water.
- One week from today, on _____, you should collect the sticky traps. Follow these steps:
    1) Put on the latex gloves provided.
    2) Pick up the traps and place them in the correct labeled plastic (Ziploc-type) bag
    3) Seal the bag
    4) Write the date of collection on the outside of the bag
    5) Remove your gloves and throw them away
    6) Wash your hands with soap and water
    7) Return the bag to your Resident President ( ) who will be available in the Manager's Office of your development between _____.
- If you collect your traps before or after the date listed above, it is still okay. Just write down the date of collection and call the Resident President to tell him or her when you will be returning the traps.
- Please call XXX at xxx-xxx-xxxx if you have any questions.